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Peter Henderson, Co.

HENDERSON'S

BULB CULTURE

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INDEX.

Page.		Page.		Page.	
Acis.....	8	Cypella.....	13	Musk Hyacinth, See <i>Muscaria</i>	12
Aconite Winter, See <i>Eranthis</i>	14	Cyrtanthus.....	13	Naturalizing Bulbous Plants.....	3
Achimenes.....	8	Daffodil. See <i>Narcissus</i>	19	Nægelia.....	19
African Corn Lily, See <i>Ixia</i>	17	Dahlia.....	13	Narcissus.....	19
African Harlequin Flower, See <i>Sparaxis</i>	21	Designs for Bedding Tulips, etc.	2	Nemastylis.....	20
Agapanthus.....	8	Dielytra.....	13	Nerine.....	20
Albuca.....	8	Dioscorea.....	13	Ornithogalum.....	20
Allium.....	8	Dodecatheon.....	14	Oxalis.....	20
Alstroemeria.....	8	Dog's-tooth Violet, See <i>Erythronium</i>	14	Pæonia.....	20
Amaryllis.....	8	Elephant's Ear, See <i>Colocasia</i>	12	Pancratium.....	20
American Cowslip, See <i>Dodecatheon</i>	14	Eranthis.....	14	Paper-white Narcissus, See <i>Narcissus</i>	19
American Wood Lily, See <i>Trillium</i>	22	Erythronium.....	14	Peacock Tiger Flower, See <i>Tigridia</i>	22
Amorphophallus.....	9	Eucharis.....	14	Peacock Iris, See <i>Vieussieuxia</i>	24
Anemone.....	9	Fairy Lily, See <i>Zephyranthes</i>	24	Phædranassa.....	20
Annunciation Lily, See <i>Lilium Candidum</i>	18	Ferraria.....	14	Polianthus, See <i>Tuberose</i>	23
Anomatheca.....	9	Forcing Bulbs.....	6	Pretty Face, See <i>Calliprora</i>	11
Antholyza.....	9	Freesia.....	14	Puschkinia.....	21
Apios.....	9	Fritillaria.....	14	Queen Lily, See <i>Phædranassa</i>	20
Arisæma.....	9	Galanthus.....	14	Ranunculus.....	21
Arum.....	9	Galtonia.....	14	Richardia.....	27
Astilbe, See <i>Spiræa</i>	22	Gesnera.....	14	Rigidella.....	21
Babiana.....	9	Gladiolus.....	15	Roman Hyacinth, See <i>Hyacinth</i>	16
Baboon Root, See <i>Babiana</i>	9	Gloriosa.....	15	Roman Squill, See <i>Bellevalia</i>	10
Begonia (Tuberous).....	9	Glory of the Snow, See <i>Chionodoxa</i>	xi	Roumlea.....	21
Belladonna Lily, See <i>Amaryllis</i>	8	Gloxinia.....	15	Scarborough Lily, See <i>Vallota</i>	23
Bellevalia.....	10	Golden Lily, See <i>Lycoris</i>	18	Scarlet Twin Flower, See <i>Bravoa</i>	10
Bermuda Lily, See <i>Lilium Harrisii</i>	18	Grape Hyacinth, See <i>Muscaria</i>	19	Scilla.....	21
Bessera elegans.....	10	Guernsey Lily, See <i>Nerine</i>	20	Sea Daffodil, See <i>Pancratium</i>	20
Bleeding Heart, See <i>Dielytra</i>	13	Guinea Hen Flower, See <i>Fritillaria</i>	14	Shell Flower, Mexican, See <i>Tigridia</i>	22
Bloomeria.....	10	Hæmanthus.....	15	Snowdrop, See <i>Galanthus</i>	14
Bobartia.....	10	Helleborus.....	15	Snow Flake, See <i>Leucojum</i>	17
Bomaria.....	10	Hemerocallis.....	15	Sparaxis.....	21
Boussingaultia.....	10	Hippocrateum.....	16	Spiraea Japonica.....	22
Bravoa.....	10	Hoop Petticoat, See <i>Corbularia</i>	12	Sprekelia Formosissima (Amaryllis)	23
Brodiea.....	10	Homeria.....	16	Spring Colchicum, See <i>Bulbocodium</i>	10
Brunsvigia.....	10	Hoteia, See <i>Spiræa</i>	16	Spring and Summer Flowering Bulbs.....	5
Bugle Lily, See <i>Watsonia</i>	24	Hyacinth.....	16	Spring Snow Flake, See <i>Leucojum</i>	17
Bulbocodium.....	10	Hyacinth, Cape, See <i>Galtonia</i>	14	Spring Star Flower, See <i>Triteleia</i>	22
Butterfly Tulip, See <i>Calochortus</i>	11	Hyacinth, Feathered, See <i>Muscaria</i>	19	Spring Squill, See <i>Scilla</i>	21
Caffe Lily, See <i>Schizostylis</i>	21	Hyacinth, Grape, See <i>Muscaria</i>	19	Star Hyacinth, See <i>Scilla</i>	21
Caladium.....	11	Hyacinth, Star, See <i>Scilla</i>	21	Star of Bethlehem, See <i>Ornithogalum</i>	20
Calla Lily, Black, See <i>Arum Sanctum</i>	9	Indian Shot, See <i>Canna</i>	11	Star Tulip, See <i>Cyclothrotha</i>	13
Calla Lily, White, See <i>Richardia Æthiopica</i>	21	Iris.....	17	Sternbergia.....	22
Calla Lily, Yellow, See <i>Richardia hastata</i>	21	Isome, See <i>Pancratium</i>	20	Strumaria.....	22
Calliprora.....	11	Ixia.....	17	Sword Lily, See <i>Gladiolus</i>	15
Calochortus.....	11	Ixiolirion.....	17	Tecophylæa.....	22
Camassia.....	11	Jacobæan Lily, See <i>Sprekelia</i>	22	Tiger Flower, Peacock, See <i>Tigridia</i>	22
Candelabrum flower, See <i>Brunsvigia</i>	10	Jonquil.....	17	Tiger Iris, See <i>Ferraria</i>	14
Canna.....	11	Lachenalia.....	17	Tigridia.....	22
Cape Cowslip, See <i>Lachenalia</i>	17	Leucocoryne.....	17	Triconema.....	22
Cape Hyacinth, See <i>Galtonia</i>	14	Leucojum.....	17	Trillium.....	22
Chinese Sacred Lily, See <i>Narcissus</i>	19	Libertia.....	18	Triteleia.....	22
Chilian Crocus, See <i>Tecophilæa</i>	22	Lilium.....	18	Tropæolum.....	22
Chionodoxa.....	11	Lily, Annunciation, See <i>Lilium</i>	18	Tuberose.....	23
Chlidanthus.....	11	Lily, Bermuda, See <i>Lilium Harrisii</i>	18	Tuberous Begonia, See <i>Begonia</i>	9
Christmas Rose, See <i>Helleborus</i>	15	Lily, Guernsey, See <i>Nerine</i>	20	Tuberous Wistaria, See <i>Apis</i>	9
Cinnamon Vine, See <i>Dioscorea</i>	13	Lily of the Amazon, See <i>Eucharis</i>	14	Tulbaghia.....	23
Coburgia.....	11	Lily of the Field, See <i>Sternbergia</i>	22	Tulip.....	23
Colchicum.....	11	Lily of the Nile, See <i>Richardia</i>	21	Tydea.....	23
Cold Frames and Pits.....	5	Lily of the Valley, See <i>Convallaria</i>	12	Urceolina.....	23
Colocasia.....	12	Lily Scarborough, See <i>Vallota</i>	23	Urn Flower, See <i>Urceolina</i>	23
Convallaria.....	12	Lily, Scarlet Jacobæan, See <i>Sprekelia</i>	22	Vallota.....	23
Cooperia.....	12	Lily, St. Joseph's, See <i>Lilium Candidum</i>	18	Vieusseuxia.....	24
rbularia.....	12	Lycoris.....	18	Watsonia.....	24
Lily, African, See <i>Ixia</i>	17	Madiera Vine, See <i>Boussingaultia</i>	10	White Club Flower, See <i>Leucoryne</i>	17
.....	12	Mariposa Lily, See <i>Calochortus</i>	11	Wild Hyacinth, See <i>Camassia</i>	11
See Fritillaria.....	14	Meadow Saffron, See <i>Colchicum</i>	11	Wind Flower, See <i>Anemone</i>	9
.....	12	Merendera.....	18	Window Garden.....	4
.....	12	Milla.....	18	Winter Aconite, See <i>Eranthis</i>	14
.....	12	Montbretia.....	18	Wood Sorrel, See <i>Oxalis</i>	20
.....	12	Moræa.....	19	Xiphion.....	24
.....	12	Mt. Etna Lily, See <i>Sternbergia</i>	22	Zephyranthes.....	24
.....	13	Muscari	19		

BULBOUS PLANTS.

Bulbous plants are among the most showy and useful of our garden favorites, and with scarcely any exception are easily managed, sure to bloom and require but little labor and care to enable them to produce their charming flowers. As winter-blooming plants they hold an important place, as there is no period of the year during which flowers are so highly appreciated, and certainly no class of flowering plants afford more pleasure. The beautiful and almost endless variety of the various species now grown in such enormous quantities, more especially for winter and spring decoration, and the interest exhibited in their successful management, has induced us to compile this small book giving a short description of the principal genera, with the best known methods of culture, etc., in the hope that it may be of service to amateurs and others desirous of cultivating at least a few of these most interesting and popular flowers.

In the culture of bulbous plants it must never be forgotten that it is the leaves of one year that make the flowers for the next, consequently unless the leaves are well developed and thoroughly matured there can be little or no bloom the following season. Cutting away the foliage, therefore, before it is matured (as is too often done) is sure to materially weaken the bulbs, and if persisted in will eventually end in their destruction. It is also from want of noting the natural period of growth in bulbs which is as varied and different as the weeks or months of the entire year, and adapting our culture to fit these, that so many failures occur in the culture of bulbs, and so many disappear altogether from our beds and borders.

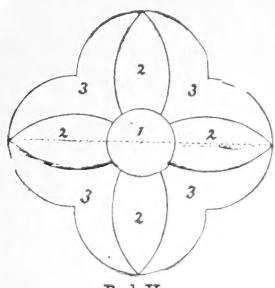
As Hyacinths, and in fact all Dutch bulbs are grown specially to produce the best effects the first year, they are never to be depended on, if left in the ground for a second season, but should be taken up and replanted yearly. Tulips will make a fair show the second year if left in the ground, but it will be found much more satisfactory if they also are taken up when done blooming, dried off and replanted in Fall, as recommended above. The best known method of treatment of the various bulbs, whether for out-door culture or for forcing, etc., is given under their respective headings.

To secure healthy, vigorous plants and really fine flowers, out-door planting should be done early in the fall, though generally speaking, from October to the middle of November is the most desirable time, as the ground to be used is often not disengaged until after the first frost. Preparations should then be made not only to get all the beds and vacant spaces intended to be planted, manured, and put in order, but also by early securing a suitable assortment of choice flower roots—often a difficult matter if ordering is deferred till late in the fall, when in consequence of the exhaustion of stocks, many of the specially required sorts are frequently unobtainable.

To those possessing a warm pit or greenhouse it is no difficult matter by early planting and forcing a few Van Thol Tulips, Roman and other Hyacinths, Paper-white Narcissus, etc., to have them in bloom by New Year's day, whilst a few successive plantings of these and other choice sorts will ensure a beautiful display throughout the dull winter months. The out-door display may be fairly said to commence with March, when, if judiciously planted, the garden is growing bright with Snow-drops, Scillas, Chionodoxas, Crocuses, Daffodils, etc., and during April and well into May the flower beds are brilliant and charming with a wealth of lovely Hyacinths, Tulips, Anemones, Narcissus, etc., which, with a fair accompaniment of Pansies, Daisies, Polyanthus, Forget-Me-Nots, Aubretias, and other spring flowers, make up a display of floral beauty rarely equalled.

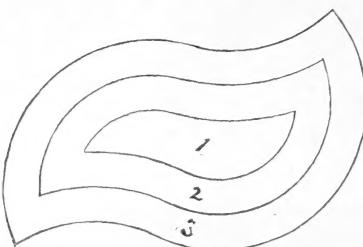
Where beds or borders of Hyacinths or Tulips are planted, very fine effects are often produced by mixing the colors, care being taken to have them so arranged that the contrasts of color will be harmonious. The most showy and satisfactory effects, however, are produced by planting the various colored Tulips, Hyacinths, etc., that grow about the same height and flower at the same time, in *lines*, each of one color, or in masses or geometrical designs. We subjoin a few of the latter.

Designs For Massing or Bedding Hyacinths, Tulips, Etc.



Bed H.

Bed H. Six feet across, containing, No. 1—10 Uncle Tom, blue; No. 2—50 Gigantea, blush; No. 3—60 R. Steiger, red, in all 120 Hyacinths planted six inches apart.

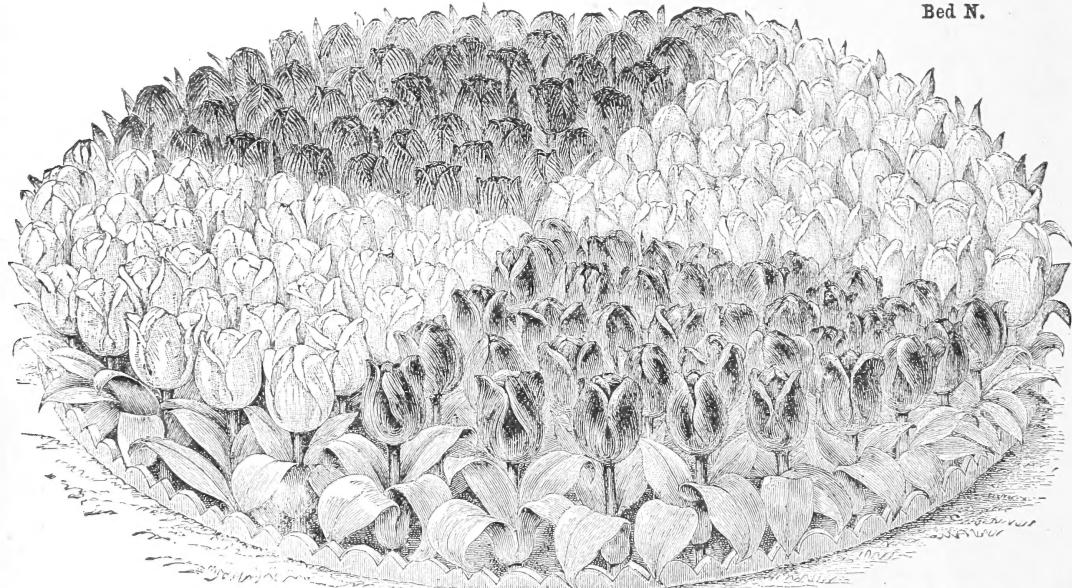


Bed L.

Bed J. Six feet across, containing, No. 1—6 Robert Steiger, red; No. 2—30 Voltaire, white; No. 3—18 Charles Dickens, blue; No. 4—40 Norma, rose, in all 94 Hyacinths planted six inches apart.

Bed L. Six feet long by three feet across, containing, No. 1—21 Robert Steiger, red; No. 2—24 Voltaire, white; No. 3—30 Charles Dickens, blue, in all 75 Hyacinths planted six inches apart.

Bed N.

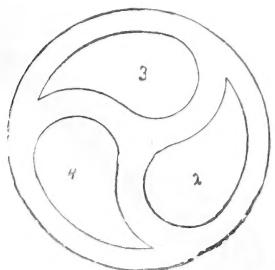


Bed N. Five feet across, containing, 50 Belle Alliance, scarlet; 50 Queen Victoria, white; 50 Yellow Prince, yellow; 50 Rosa Mundi, rose, in all 200 Tulips planted four inches apart.

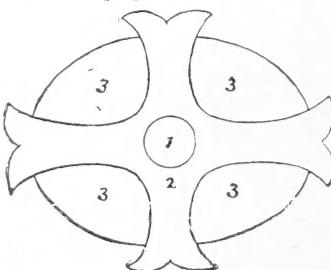
Bed O. Six feet across, containing, No. 1—130 Queen Victoria, white; No. 2—50 Chrysolora, yellow; No. 3—50 Artus, scarlet; No. 4—50 Rosa Mundi, rose, in all 280 Tulips planted four inches apart.

Bed P. Six and one-half feet long by five feet across, containing, No. 1—20 Canary Bird, yellow; No. 2—150 Verboom, scarlet; No. 3—100 Queen Victoria, white, in all 270 Tulips planted four inches apart.

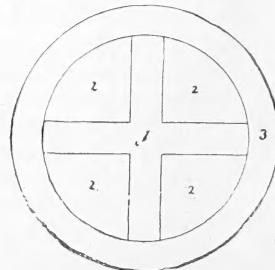
Bed Q. Six feet across, containing, No. 1—55 White Pottebakker; No. 2—125 Artus, scarlet; No. 3—100 Chrysolora, yellow, in all 280 Tulips planted four inches apart.



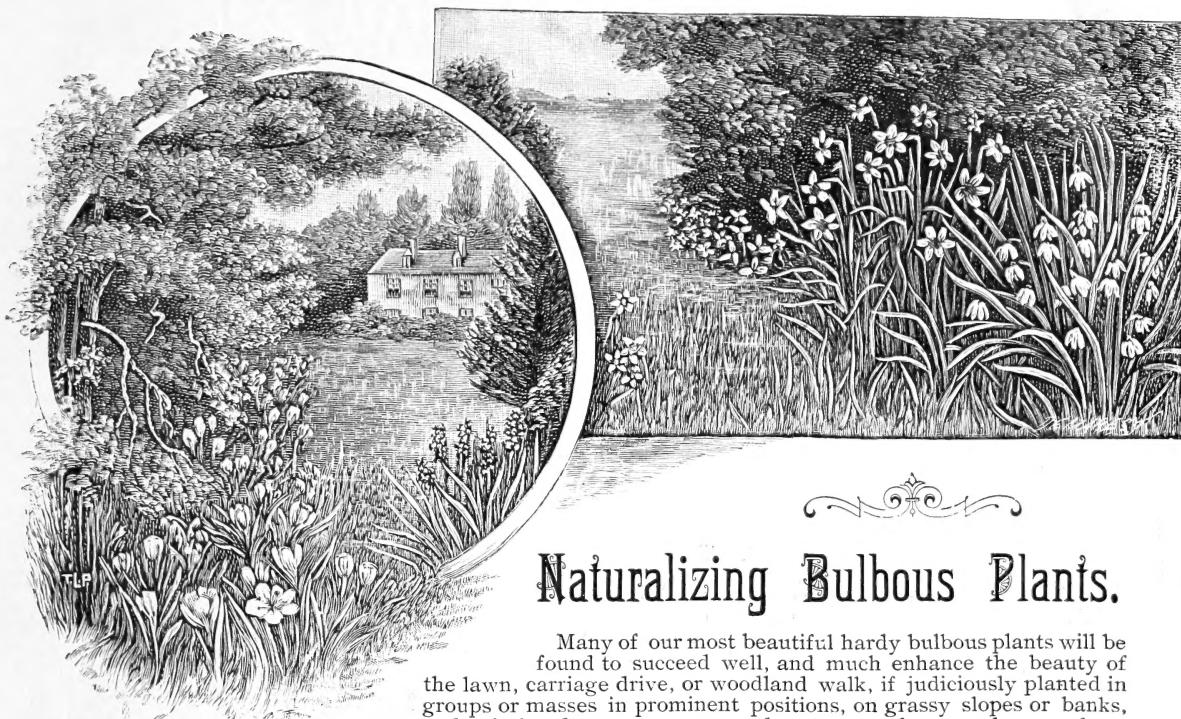
Bed G.



Bed P.



Bed Q.



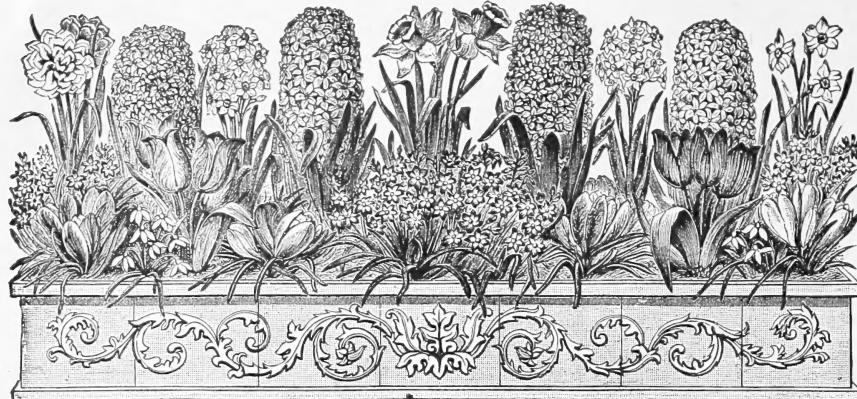
Naturalizing Bulbous Plants.

the grass holds but a precarious foothold. Many of them too, come so early in the season that they perfect their growth and are ready for their season of rest by the time the trees are in full leaf or the grass ready for the mower. Beautiful as the green grass is, other beauties may be added enhancing its charms, and supplying these wherever and whenever a chance occurs is doing good work. What for instance is more beautiful in early spring, when winter has scarcely untied his icy fetters than to find under some tree, close by a favorite walk, a carpet of the Winter Aconite with its bright yellow flowers, each in a quaint and pretty setting of green, still further along groups of the lovely blue Scillas, Grape Hyacinths, Glory of the Snow, Crocuses, etc. Snowdrops particularly, when once planted increase freely and cover the ground with a wealth of bloom every spring without further trouble. They should all be carefully planted in fall using a sharp trowel in preference to a dibber, or better still the sod removed by a spade, and the soil underneath loosened and enriched if necessary, the bulbs placed at the required depth, and the sod returned. The location of the group of course must decide its size. In many places small groups of Daffodils or Irises will be much more effective and give greater pleasure than a large mass would do, while in other small groups or masses of Scillas, Snowdrops, or Chionodoxas would look weak and out of place. Individual taste therefore must be the guide bearing in mind, however, that every season adds to their effectiveness and beauty. The following species are admirably adapted for this purpose, and will be found among the chief attractions of a woodland walk in early spring. Instructions as to depth and time to plant, etc., will be found under their respective headings.

Allium Moly, yellow. Open and sunny position.
 Apis Tuberosa, brownish purple. Climbing.
 Bulbocodium, purple. Partial shade.
 Camassia, purple. Shady woods.
 Chionodoxa, Glory of the Snow, blue. Open or shady banks.
 Colchicum, Meadow Saffron, purple. Open and sunny position.
 Convallaria, Lily of the Valley, white. Shady woods.
 Crocus, many colors. Open and sunny places.
 Daffodils(Narcissus), yellow. Open or shady dell.
 Dioscorea, Cinnamon Vine, whitish. Climbing.
 Dodecatheon, purple and white. Partial shade.
 Eranthis(Winter Aconite), yellow. Partial shade, under trees, etc.
 Erythronium, Dog's Tooth Violet, purple and white. Partial shade.
 Galanthus (Snowdrop), white. Partial shade, under trees.
 Hemerocallis flava, yellow. Open, sunny, moist.

Hyacinth, many colors. Sheltered but open.
 Iris, Germanica, many colors. Moist rich banks.
 Iris, Kæmpferi (Japan), many colors. Banks of streams, etc.
 Leucojum, Snow-flake, white. Open or partial shade.
 Lilium, various sorts, and colors. Open and sunny position.
 Muscari, Grape Hyacinth, blue and white. Partial shade.
 Muscari, Feather Hyacinth, blue. Partial shade.
 Narcissus, (Daffodil,) yellow. Open or shady.
 Narcissus—Poeticus, white. Open and sunny.
 Pæonia—sorts, white, red, etc. Open and sunny.
 Puschkinia, blue. Partial shade.
 Scilla Sibirica, blue. Shady banks.
 Scilla campanulata, blue. Shady woods.
 Trillium, white. Shady woods.
 Tulips, many colors. Open and sunny.
 Zephyranthes, white and pink. Open and sunny.

THE ♦ WINDOW ♦ GARDEN.



There is no class of plants that is more important or that gives more satisfaction for the window garden than the various species of bulbous plants. They are the most easily grown of all and are sure to bloom abundantly. There is nothing more cheering or pleasant than a few Hyacinths, Tulips, Freesias, Jonquils or other bulbs displaying

their gorgeous colors and delightful fragrance during the dull months of winter. They should be potted from September to November, but generally the earlier the better, as the longer time they have to make roots and get thoroughly established the better they will bloom. A compost of sandy loam, leaf soil, and a little well rotted manure with a liberal admixture of sand will be found desirable for almost all bulbs, which in planting should be placed below the surface so that they will be entirely covered. Water well and set away in a cellar or cool dark place to make roots, which will take from six to eight weeks, when the most forward may be brought out for blooming, to be followed by the rest, a few at a time, as desired for succession. Keep them free from dust by sprinkling overhead occasionally, water freely especially when growing rapidly, and give as much fresh air as practicable. Interesting and beautiful objects for the Window Garden may be produced by planting Crocuses or Lily of the Valley in pyramidal pots or the various ornamental styles of Crocus pots made specially for the purpose and pierced with holes to allow the shoots to escape and the flowers to expand. They require the same treatment above described, and must never be allowed to suffer for water. When well started they should be gradually exposed to the light and if kept in the coolest part of the window will last several weeks in beauty.

When the bulbs have done blooming it is necessary to give them as good a situation as practicable to enable them to mature their leaves and consequently their bulbs. Many species seem to ripen well even in partial light and succeed well if kept in a light cellar after blooming. The so called "Dutch Bulbs" such as Tulips, Hyacinths, etc., having been grown purposely to give the very best effects the first season are slow to recuperate and will be of little or no use to force again for another season. They may be gradually dried off, thoroughly ripened and planted in the open ground for cut flowers. Special instructions are given for the management of the various sorts under their respective headings. The following species are of easy management and will be found exceedingly attractive for the "Window Garden" during winter and spring :



Hyacinths in Glass.

- Allium grandiflorum.
- Allium Neapolitanum.
- Amaryllis—sorts.
- Anemone.
- Arum.
- Babiana.
- Brodiaea.
- Bulbocodium.
- Calla Lily.
- Calochortus.
- Chinese Sacred Lily.
- Chionodoxa.
- Convallaria (Lily of the Valley.)
- Crocus.
- Cyclamens.
- Eucharis (Lily of the Amazon.)
- Freesia.
- Fritillaria.
- Gesnera.
- Hæmanthus.
- Hyacinths.
- Hyacinths, Roman.
- Iris Persica.



Lily of the Valley in Pyramidal Fancy Pot.

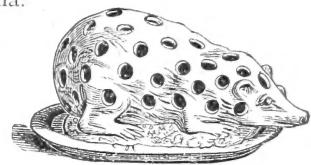


CROCUSES GROWN IN SAND AND WATER.

Ixias.
Jonquil.
Lachenalia.
Lilium Candidum.
Lilium Harrisii
(Bermuda Lily.)
Milla.
Muscari.
Nægelia.
Narcissus—sorts.
Ornithogalum.
Oxalis.
Richardia.
Scilla Peruviana.
Tricyrtis.
Triteleia.
Tritonia.
Tropæolum.
Tulips, Early.
Tydæa.

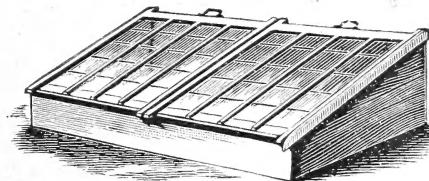


CROCUS BEE-HIVE.



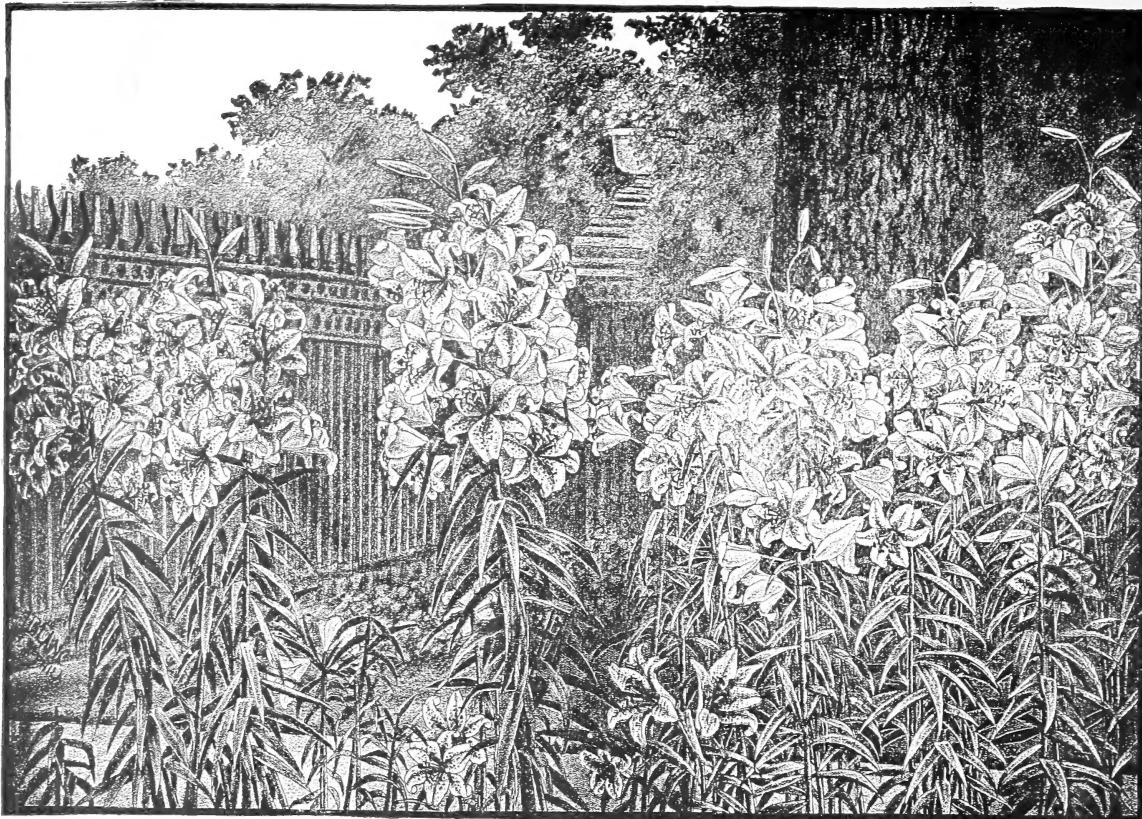
CROCUS HEDGE-HOG.

COLD FRAMES AND PITS.



COLD FRAME.—This is the term used for the low glass structure in use for protecting such plants as are not sufficiently hardy to withstand the winter in the Northern States. The boxes or frames used are simply two boards running parallel with each other and nailed to posts to secure them in line, the one at the back or north side being ten to twenty inches in height, and that for the front or south side being eight to twelve inches, according to the height of the plants desired to be grown in them, which gives pitch enough to carry off the rain and to catch the sun's rays. The width between these boards should be enough to take the length of a six-foot sash, which is the most convenient size. Quite a number of half-hardy, bulbous plants will be found to succeed well and give great satisfaction in such an erection, more especially if an additional protection of mats or light wooden shutters, or both is given in very severe weather. Cold frames are also useful for forwarding a few clumps of Lily of the Valley, Crocuses, Erythroniums, Scillas, Chionodoxas, or other bulbs, which may be taken up from the open ground, potted, placed in the frame and kept dark for a few days to draw the flower spikes well up, and thus brought into flower a few weeks earlier than those out of doors.

COLD PITS are identical with Cold Frames, except that an excavation of from two to four feet is made below the general level of the ground so as to admit of larger plants being placed in them. The sunken pit, however, is a better protection than the cold frame on the surface; for when sunk to the depth of two or three feet and covered with glass, it will resist a much heavier frost than the frames on the surface. They are, therefore, to be preferred for protecting all half-hardy bulbs grown in pots, which, when successfully wintered over, can be brought out and flowered in the house, or plunged or planted out in the open border. They are also excellent, on account of their coolness, for retarding reserves of such bulbs as Hyacinths, Tulips, Narcissus, Freesias, etc., and such plants as Carnations, Roses, Azaleas, Spiræas, Camellias, etc., which may be removed to the conservatory or Window-garden at pleasure, and where on account of more heat and light they will soon be forced into flower, thus keeping up a fresh supply of bloom throughout the winter and spring months. Care must be taken that both cold frames and cold pits are well drained, either from the nature of the soil or otherwise, as water standing in them would be destructive to the plants, whether planted in the soil or grown in pots.



BED OF GOLDEN BANDED LILY.

SPRING AND SUMMER FLOWERING BULBS.

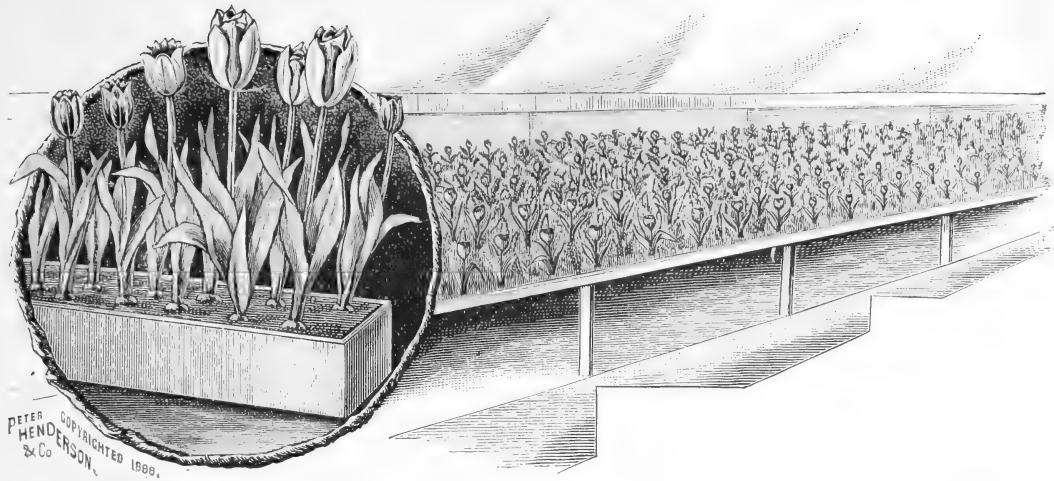
Spring blooming bulbous plants are especially valuable, some of the earliest of them commencing to bloom before the snow has left us, and at a time when the garden is bare and unattractive. The various species, therefore, whether grown in beds in masses, or in clumps in the herbaceous border or shrubbery, are always charming and interesting, and coming at a season when most needed, are always appreciated more than any other class of flowers. From September to the middle of November is the best time for planting; if deferred later a suitable assortment of the bulbs required should be secured early, as if left till wanted, in consequence of the exhaustion of stocks, some of the sorts most especially required may be unobtainable.

To grow them to perfection the beds or borders should be well drained, either naturally or artificially, and the soil dug at least a foot deep, with a liberal dressing of well decayed manure added. Fresh, coarse manure is injurious to the roots of all bulbs. If the ground is heavy a good proportion of sand and leaf-soil should be incorporated. The depth at which the various bulbs should be planted varies considerably. The Western Lilies, *L. Humboldti*, *L. Washingtonianum*, etc., are found to do best at a depth of ten to twelve inches, the various other Lilies, Crown Imperials, Hyacinths, etc., four to five inches, Tulips, Narcissus, Jonquils, etc., three to four inches, etc., the larger bulbs requiring to be planted deepest. The rows should be from six to ten inches apart, and the bulbs placed from four to eight inches, according to their size. In planting, the beds or borders should be rounded up to the centre to prevent water standing on them in winter. As cold, freezing weather approaches give a good covering of leaves, salt hay, or stable manure to partially protect from frost, and early in spring remove half of it as soon as the shoots begin to show through the soil, the rest to be removed when danger of frost is over, and the bed or border then carefully forked over or stirred up with a bayonet hoe. They will then require but little attention till done blooming, when, if not desired to be left permanently, they may be taken up and "heeled in" in a shady, sheltered place till well ripened off, when they may be cleaned and stored away for next season's planting.

The various summer flowering and ornamental leaved bulbous plants may be planted out from the middle of April till the 1st of June, according to their nature or requirements, as described under their respective headings. The following list of spring flowering and bedding bulbs and of summer flowering bulbs may be found useful:

For Bedding and Spring Flowering.—Anemone, Bulbocodium, Camassia, Chionodoxa, Crocus, Daffodil, Eranthis, Fritillaria, Galanthus, Hyacinth, Jonquil, Muscari, Narcissus, Puschkinia, Triteleia, Tulips, Scilla, Snowdrop.

For Summer Flowering.—Allium, Amorphophallus, Antholyza, Apios, Begonia (tuberous), *Bessera*, Boussingaultia, Brava, Brodiaea, Caliprora, Calochortus, Camassia, Canna, Colocasia, *Cooperia*, Crocosmia, Cyclothrobra, Dahlia, Ferraria, Galtonia, Gladiolus, Hemerocallis, Iris, Lilium, *Madiera* vine, Milla, Montbretia, Oxalis, Pancratium, Ranunculus, Richardia albo-maculata, Schizostylis, *Sternbergia*, Sprekelia, Tigridia, Tritonia, Tricyrtis, Tuberose, Urceolina, Vieusseuxia, *Zephyranthes*.



FORCING BULBS.

To obtain the best results in forcing bulbs of any sort for winter flowering, it is indispensable that they be well rooted before being exposed to the light and heat, and started to grow ; in fact, bulbs will never grow or flower well if this is neglected or overlooked. The same general culture is necessary for the amateur as for the florist, and the same general rules of cultivation apply to both. When grown in quantity the bulbs are planted thickly together in pots or shallow boxes, and placed in a cold frame, cellar, or in some sheltered spot, out of doors, in either case after a thorough watering being covered with leaves, sand or other material, to the depth of four or five inches to exclude frost or heat, for it must not be forgotten that a strong development of roots can only be had at a low temperature, say from forty to fifty degrees, and any attempt made to force bulbs to make roots quicker in a high temperature will most certainly enfeeble the flower, if not prove a total failure. This will take from six to eight weeks for the majority of bulbous plants, though some of the kinds vary considerably as to the length of time required, manner of treatment, etc. When brought into the greenhouse heat should be applied gradually, beginning about 50 degrees and advancing to 60 or 70 degrees. The manner in which florists "bring up" Tulips, Hyacinths, etc., so that they do not bloom prematurely or with very short stems is, when they are brought into the greenhouse, to place them under the stage or benches in the partial shade for a few days till the stems lengthen and the flowers show signs of expanding, when they may be placed in a position to receive the full light. The same effect is produced on those in pots, by inverting a pot over the bulbs, only allowing the light from the hole in the bottom of the flower-pot to strike the bulb. Lily of the Valley is forced in pots or benches in a bottom heat of not less than 90 degrees, shaded heavily by cloth stretched under the glass, which draws up and lengthens the flower, stem and leaves, and is thus brought into bloom in from sixteen to eighteen days. The best known methods of forcing Lilies, Narcissus and the other various kinds is described under their various headings, to which we refer the reader, and which, as the same treatment is applicable whether grown in large or small quantities, will, we hope, be of benefit to the amateur as well as the practical gardener or florist. The following is a list of bulbous plants more generally forced by florists for winter decoration :

Allium Grandiflorum,	Hyacinth, Roman,	Narcissus, Stella,	Single.
Allium Neapolitanum,	Jonquils,	" Trumpet Major,"	"
Anemone Fulgens,	Lilium Candidum,	" Poeticus ornatus,"	"
Calla (Richardia),	" Harrisii,	" Incomparable, Double,	
Freesia,	" Longiflorum,	" Von Sion,	"
Gladiolus, "The Bride,"	Lily of the Valley,	Ornithogalum Arabicum,	
Helleborus niger,	Narcissus Obvallarius, single	Tulips, Single Early Sorts,	
Hyacinth, Early Dutch,	" Maximus,	" Double Sorts.	
" Italian,	" Scoticus,		

SPECIAL CULTURAL INSTRUCTIONS.

ACIS.

A small genus of half-hardy bulbous plants with delicate pink flowers, closely allied to the Snow-flake. They require a light, sandy soil and the protection of a cold pit or frame during winter.

ACHIMENES.

These most beautiful flowers are easily grown in a warm greenhouse or ordinary hot-bed. The bulbs should be planted about an inch deep in succession, from March to May, in a light, rich soil, care being taken not to give them too much water till they start growing, when they should get a liberal supply and be grown on for flowering in a temperature of about 75 degrees. With from six to ten bulbs in a five to seven inch pot, fine specimens may be grown for house or conservatory decoration, flowering from July till November. When the blossoms have withered, the plants should be gradually dried off and kept quite dry in a warm place all winter. The bulbs keep much better if left in the dry soil until March or April, when they should be carefully shaken out and replanted, as before mentioned. Dormant bulbs are procurable from November to May.

AGAPANTHUS. Blue African Lily.

Though introduced to cultivation many years ago, this most effective decorative plant is still comparatively rare. The foliage is large and graceful, and clusters of twenty to thirty bright, blue flowers are produced on scapes two to three feet in height—the flowers opening in succession for a long period during the summer and fall, thus making it a noble ornament on lawns or in pots or tubs on terraces or piazzas. It is of easy culture, and may be grown and flowered to perfection outside during summer, and removed to a room or cellar protected from frost during winter. Good loam, with a little rotted manure, is all that is necessary to start them growing strongly, and as they make numerous strong, fleshy roots, they require abundance of water and a liberal supply of clear manure water during the flowering season. As the season advances, let the plants gradually go to rest, merely giving water enough during winter to keep the leaves in good condition. Strong roots may be procured from November to June.

ALBUCA.

These pretty and remarkable Cape bulbs thrive well in a sandy loam mixed with a little leaf-mould. They flower in May and June, and may be grown in a cold frame or in pots in the greenhouse, like Ixias.

ALLIUM.

Of this large family several species are grown for their ornamental qualities. They are all hardy, very showy, and continue a long time in bloom. Their culture is very simple, and almost any soil suits them. *A. grandiflorum* and *A. Neapolitanum* are among the earliest of spring flowering bulbs, and being easily forced, their cut flowers are highly prized for loose bouquets, vases, etc. *A. Moly*, yellow, *A. azureum*, blue, and others are admirable for clumps in the herbaceous border or shrubbery, flowering in June and July, and some species even later. Dormant bulbs may be procured from September to March.

ALSTRÖMERIA.

A little known but very interesting and showy family of greenhouse and half-hardy, tuberous-rooted plants, with clusters of flowers of all shades of scarlet, orange, red, white, and pink, either self-colored or striped and spotted. Some of the species, as *A. aurantiaca*, *A. aurea*, *A. psittacina*, and *A. Pelegrina* do well planted in a cold frame, and when well established (as the roots run very deep) they are almost entirely hardy, and increase very rapidly. They flower freely in summer, and may be planted from November to May.

AMARYLLIS. (*Hippeastrum*.)

The Amaryllis has always been a favorite flower for the window garden and conservatory, and it would be nearly impossible to name a more magnificent or showy genus of bulbous plants. Under the simplest conditions of culture they throw up spikes of from one to three feet high, surmounted by large trumpet-shaped flowers, some nearly a foot wide when expanded, and varying from four to ten inches in length. They succeed best in a good, fibrous loam with a liberal admixture of leaf-mould, well rotted manure and sand. In potting, the thicker part of the bulb only should be covered, leaving at least two-thirds of the bulb above the soil. They are then started in a temperature of about 60 degrees, when they will soon push up flower stems, care being taken that they are judiciously watered, and that the plants be put where they get a fair amount of light. After the bulbs have flowered and the growth matured, water should gradually be discontinued as the foliage shows signs of decay. When at rest they require very little space, and may be stowed away in any dry, cool place, leaving the bulbs in the pots. With a moderate collection of these bulbs a succession of their beautiful flowers may be had all the year round. Many

of the kinds may also be planted out in a warm border in spring, where they will flower, and if the season be favorable will renew their bulbs in time to be taken up before the appearance of frost, and ripened off for another season. Dormant bulbs of the finest varieties may generally be had from September to May. *A. Belladonna*, the Belladonna Lily bears immense heads of white, sweet-scented flowers heavily striped with pink, flowering late in the fall. It should be potted or planted in August or September, and will flower shortly afterwards. It is perfectly hardy south of Washington.

AMORPHOPHALLUS RIVIERI.

(Umbrella Arum.)

A very remarkable and showy plant closely allied to *Arum*, with palm-like foliage spreading in the shape of an umbrella, the stem is marbled with brown and white; a desirable plant for a single specimen or group on a lawn. It should be planted out in May, about four inches deep, and housed in a warm place on the advent of frost. It requires abundance of water while growing rapidly. Dormant tubers may be procured November to May.

ANEMONE (Wind Flower.)

The varieties of *A. coronaria* form a most brilliant group of spring-flowering plants, producing enormous quantities of bloom of every shade of color, both double and single, and of very varied form. Though hardy south of Washington, they are not entirely so in this latitude, but if planted in September or October, about two inches deep and protected by a cold frame in winter, they will flower magnificently in spring. The tubers, however, keep well over winter, and may be planted out in spring for summer blooming. The varieties of *A. coronaria* in company with *A. fulgens* and its double variety, if placed five or seven in a five or six inch pot, plunged out of doors or in a cold frame, and brought into the greenhouse from the middle of December onwards, a few at a time, are splendid additions to our winter flowering bulbs. Dormant tubers are in season from September to May.

ANOMATHECA.

A. cruenta, the best known species, is an Ixia-like dwarf, bulbous plant, which, though hardy further South, is not entirely so here, but may be wintered over with success in a cold frame. If grown in a rich, sandy loam, in four or six inch pots of from six to a dozen bulbs each, it speedily forms a dense and graceful mass of foliage bearing many showy and beautiful spikes of bloom. By keeping it dormant, say to the end of March, placing it out of doors during summer, and taking it in when in blossom, it may be had in full display as late as October, at which season its spring-like flowers are doubly welcome. Dormant bulbs may be had from September till March.

ANTHOLYZA.

A very showy and stately group of half-hardy bulbs with the appearance of the Gladiolus. They are hardy south of Washington, and can be grown here with the protection of a cold frame or pit, or if dried off in the fall and wintered over, they may be planted out in the spring, flowering from July

to September, and will be found very useful for grouping in beds or shrubberies, their brilliant long tubular flowers and tall spikes of bloom rendering them very effective also for cut flowers. Dormant bulbs may be procured from September to May.

ARISÆMA.

A division of the Arum family, not much grown but of real merit, their flowers are at once beautiful, strange, and very interesting. They are easily grown in any good soil, and make pretty house plants, flowering in June and July. *A. triphyllum*, the native Indian Turnip, belongs to this genus.

APIOS. Ground-Nut. Tuberous Wistaria.

A. tuberosa, the only species, is an elegant climbing plant, bearing large clusters of brownish-purple, sweet-scented flowers in July. The tubers, which are edible, may be planted anytime in spring, the earlier the better, and as they are perfectly hardy, they require no further attention. Dormant tubers may be procured from November to May.

ARUM.

Of this large family only a few are in cultivation. They are all curious, mostly tender plants, and when grown in pots should be repotted in a rich, sandy loam in March or just before they begin to grow. They are all late spring and summer bloomers, and in the fall, when the leaves have died off, only enough water should be given during winter to keep the soil slightly moist. Dormant tubers may be had from November to May.

ASTILBE JAPONICA. (See Spiræa.)

BABIANA. (Baboon Root.)

A charming genus of bulbs from the Cape of Good Hope, with leaves of the darkest green, thickly covered with downy hairs, and bearing showy spikes of flowers varying in color from the richest crimson to the brightest blue, many of them being sweet-scented. As they are not hardy north of Washington, they should have the protection of a cold frame and be planted in October about four inches deep and the same distance apart, surrounding them with an inch or so of sand. For pot culture, five or six bulbs in a five inch pot, in a rich, sandy loam will make lovely and useful specimen plants. Do not water much till growth commences, and keep the plants near the glass until ready to remove to the greenhouse or sitting-room. Dormant bulbs may be had from October till February.

BEGONIAS, TUBEROUS.

The wonderful beauty of this class of Begonias and its adaptability to almost all situations, has made it a general favorite for summer decoration, and they are now being used by thousands for bedding purposes. For this purpose, in variety and brilliancy of color, they are unsurpassed, while grown in pots or baskets for house or conservatory decoration they are simply grand, and fill a long-felt want. In starting the tubers for out-door culture, they should be planted in pots or shallow boxes in March or April, using a mix-

ture of loam, leaf-mould and sand to encourage them to root freely. They should be let come on slowly and sturdily in a frame or greenhouse near the glass, and receive plenty of ventilation when the weather is favorable to the admission of air, so that they will not draw and get leggy. It will also be necessary to harden them off by giving plenty of air night and day before planting them out, which may be safely done the first week in June. The soil for the beds in which they are to be planted should be well broken up and enriched with a good dressing of well rotted manure, and the plants placed six to nine inches apart. It is desirable also to water them now and again when the soil is dry, but this should not be done when the full sun's rays are on them, or the leaves will be scorched. A mulching of well rotted manure or leaf-mould will be of great service to prevent evaporation and keep the roots cool. Just before the first frost the tubers should be carefully taken up, dried slowly in the shade and stored in sand or sawdust in shallow boxes in a room where frost is not allowed to enter, and not in the vicinity of hot pipes or fire heat.

When grown in pots it is advisable to make several plantings from January to March, so as to lengthen the season. The tubers should be placed in small pots in rather sandy soil and as soon as fresh roots and leaves appear, shifted on into larger pots, as required, and grown on in a temperature of 55 degrees to 65 degrees, giving plenty of light and air to keep the plants stocky, but shading from strong sun to prevent burning. Give manure water once or twice a week when the pot gets full of roots, and see that they do not suffer for water at any time till their beauty is over, when the supply may be gradually diminished and the plants dried off. Dormant tubers may be had from October till June.

BELLEVALIA. Roman Squill.

A small genus of hardy bulbs with white flowers growing freely under the same conditions in which the Grape Hyacinth (*Muscaris*) is grown, and the finer species of which they closely resemble.

BESSERA ELEGANS.

A pretty little bulbous plant, the best known of the genus, with stems about a foot high, supporting an umbel of ten to sixteen drooping bell-shaped flowers, bright vermillion outside and rosy white inside. It grows well in a mixture of sandy loam and leaf-mould, and requires abundance of water when in a growing state. The bulbs should be planted in spring in groups or beds, and taken up in fall and dried off and kept warm during winter, like the Tigridia.

BLOOMERIA AUREA.

An attractive little California bulbous plant, producing umbels of golden yellow, delicate lily-like flowers on stems six to eighteen inches high. It stands the winter in light, well drained soil, but succeeds best with the protection of a cold frame or pit. Five or six bulbs grown in light, sandy soil in five inch pots form most interesting plants for the house or conservatory. Dormant bulbs may be procured from September to March.

BOBARTIA.

A small genus of half-hardy bulbous plants, with yellow flowers and rush-like leaves. They flower

in spring and grow best in a mixture of sandy loam and leaf-mould. They require the protection of a cold frame or greenhouse north of Washington. Dormant bulbs may be procured from September to December.

BOMARIA.

A beautiful genus of greenhouse twiners with orange or rose, green-tipped flowers produced during July and August. They grow well in a mixture of very sandy loam and leaf-mould, and require a liberal supply of manure water during the season of growth. Dormant tubers may be had from September to March.

BOUSSINGAULTIA. Madiera or Mignonette Vine.

This well known white-flowered, sweet-scented climber is of rapid growth, succeeding well in any soil or situation. Plant in April or May, and take up the tubers after the first frost, and store them in a cool place, like potatoes. Dormant tubers may be procured from November to June.

BRAVOA. Scarlet Twin Flower.

A graceful, tuberous rooted Mexican plant, bearing a cluster of small crimson, Amaryllis-like flowers in July on a spike about a foot in height. It is adapted for the greenhouse or cold frame, thrives best in a light loamy soil, and should be watered sparingly. Dormant tubers may be procured from November to May.

BRODIAEA.

Showy, half-hardy California bulbs, with lovely light red, blue or white tubular flowers, borne in clusters, on stems one to two feet high. They may be grown in the greenhouse or cold frame, or if planted out in spring in clumps or masses they flower very freely in June and July. Dormant bulbs may be procured from November to May.

BRUNSVIGIA. Candelabra Flower.

Very large and showy bulbs from the Cape of Good Hope, flowering during summer. Their culture is usually confined to the greenhouse or conservatory, where they require a hot, dry place during their resting season, from November to May, and a warm, moist temperature with a liberal supply of manure water during their growing season. *B. Josephinae*, with scarlet flowers, is the most showy species, and the one most generally grown.

BULBOSODIUM. Spring Colchicum.

Very attractive and desirable bulbous plants of which *B. vernum* is the best known. It is a charming early spring blooming plant with rosy purple flowers coming two weeks before the Crocus. It succeeds well in any good garden soil and should be planted about three inches deep in clumps or masses. A few patches potted up in December and placed in a sunny window or on greenhouse shelves will flower long before Crocuses or any other bulbs of similar character or color can be had in flower. Dormant bulbs may be had from September to December.

CALADIUM.

A magnificent genus of greenhouse or hot-house ornamental leaved plants, exhibiting a wonderful variety and richness of coloring in their foliage. They may be started into growth in April or May in a temperature of 65 to 70 degrees. They grow well in a light rich soil and require plenty of atmospheric moisture. In fall, when the foliage shows signs of dying down, water must be gradually withheld till they are perfectly dry, after which, they must be stored in a warm room or in the hottest part of the green-house for the winter. The plant commonly known as *Caladium esculentum* does not belong to this genus, but will be found described under *Colocasia*. Dormant tubers may be procured from November to April.

CALLIPRORA. Pretty Face.

A beautiful little Californian bulb, the bright yellow drooping flowers of which are produced in August on short scapes. It is not hardy north of Washington, but will succeed well in a cold frame or pit; or dry bulbs planted out in May will flower the same season. It is very free flowering, and remains a long time in bloom. Dormant bulbs may be procured from September till May.

CALOCHORTUS. Butterfly Tulip.

Mariposa Lily.

A genus of very showy and beautiful half-hardy bulbous plants from California, the flowers of which somewhat resembling a Tulip in shape, are of many brilliant colors, ranging through various shades of white, lilac, blue, crimson, yellow, &c., some being spotted, veined, edged or tipped with gold. Planted in May in the open border they flower in June and July, and should be taken up in fall, carefully dried and stored away for next season. They also succeed admirably when grown in a cold frame, and form very handsome specimens if grown six or eight in a five inch pot. A friend in California who has observed closely their manner of growth in their wild state gives us his experience in their cultivation. "Nearly all of these Californian bulbs grow in light shallow soils where an impervious sub-soil is close to the surface. This insures them abundant moisture during their growing season, which is our winter and spring, while of course the soil becomes perfectly dry in the summer. If planted in loose mellow soil, or if planted shallow, they throw out a fleshy process from the base which goes down to the sub-soil and the bulb is formed there. In making the beds I therefore put a layer of poor clayey soil at the bottom and tramp it down till it is packed smoothly and solid. On this I put a half inch of any light soil, not sand or manure, a mixture of loam and leaf-mould is best, and in this I plant the bulbs, resting them on the solid sub-soil. They are then covered three inches deep with good soil, which is packed firmly. The beds have enough slant to give good drainage. During the growing season they need a good deal of water, several of the species grow where they are wet till after blooming. A few weeks after blooming they can be dried off. Handled in this way I have found that all of the species of *Brodieas*, *Calochortus*, *Fritillarias*, and *Erythroniums* that I have tried, grow and bloom finely. They all do best in the sunlight with the exception of the *Erythroniums* which do best in partial shade."

and a soil composed principally of leaf-mould. Dormant Bulbs of *Calochortus* may be procured from August to January.

CAMASSIA. Wild Hyacinth.

C. esculenta resembles the common blue *Scilla* in appearance, but it is much larger, its leaves being about a foot long and very narrow. It is quite hardy and grows well in any good garden soil, but thrives best in a sheltered partially shaded situation. It flowers most freely when left several years in the same place, and delights in liberal top dressings of rich soil or well-rotted manure. Dormant bulbs may be procured from September to March.

CANNA. Indian Shot.

The French Cannas are doubtless the most useful and effective plants used in ornamental gardening. In addition to the tropical character of their foliage their gorgeous spikes of crimson, yellow, orange, or scarlet flowers are exceedingly showy, and can be seen at a great distance. For groups in front of shrubberies or for beds on lawns, or grown in tubs for terrace or piazza decoration, they are unsurpassed. The flowers are produced in abundance from June to October, when the plants may be lifted and flowered in the greenhouse or conservatory till after Christmas. Dormant roots can be procured from November to May.

CHIONODOXA. Glory of the Snow.

A small genus of hardy bulbs, producing flower spikes bearing ten to fifteen lovely *Scilla*-like flowers of a beautiful intense blue with a white centre. They are perfectly hardy, and may be planted as an edging to a bed, or in clumps or masses in the front of the shrubbery or herbaceous border, where they are doubly welcome, flowering early in the season with the snowdrops, and lasting a long time in perfection. They will thrive well in any good garden soil, and are admirable for pot culture. Dormant bulbs may be had from September to December, but either for out-door planting or for forcing they should be planted as soon in September as possible.

CHLIDANTHUS.

C. fragrans, the only species, is a very pretty yellow-flowered bulbous plant from South America, which may be grown in the flower border during summer and taken up in the fall and kept dormant like a *Gladiolus*. It thrives well in a mixture of sandy loam and leaf-mould, and flowers in June. Dormant bulbs may be procured from November to April.

COBURGHIA.

Very beautiful greenhouse bulbs of easy culture. The flowers are mostly scarlet, and are very showy. They succeed best with a liberal admixture of leaf-mould in the soil, and may be grown and flowered in the open border, planting the dry bulbs in May and taking them up in October. Dormant bulbs may be procured from November to June.

COLCHICUM. Meadow Saffron.

Very pretty, hardy bulbous plants with Crocus-like flowers, which need only to be planted in common garden soil to succeed admirably. As the

bulbs have a tendency to get deeper in the ground, thus weakening their flowering qualities, they should be replanted about three inches deep every three years or so. They flower very freely in the fall before the leaves appear, good strong roots, giving from six to eight flowers each, the flowers being large, of a reddish-purple color, and appearing in August and September. Dormant roots may be procured from September to December, but should be planted as soon in September as possible.

COLOCASIA. Elephant's Ear.

C. esculenta is a favorite "foliage-plant" for single specimens on the lawn or for bordering a bed of Cannas or other tropical-like plants. It requires a deep, rich soil, and if freely watered during summer the leaves will often grow four feet in length by three feet in width. The tubers should be taken up after the first frost and dried off carefully before being stored in a warm place for the winter, to be planted next season in May or June when the weather is suitable. Dormant tubers may be procured from November to June.

CONVALLARIA. Lily of the Valley.

This well-known plant, with its lovely spikes of bloom, pleasing, fresh green foliage and agreeable fragrance, needs no recommendation to encourage its cultivation. Planted out it succeeds admirably in a rich, loamy or heavy sandy soil, and may be grown in any shady nook or even under trees, if not too shady, receiving a good top dressing of well rotted manure every fall. It is also forced in immense quantities, New York City alone probably using a million or more sprays every season. The Lily of the Valley is nearly all imported from Germany and France, usually in single crowns or "pips." The method of culture now generally employed is to bring the roots in the quantity required for succession into a cool shed or cellar, and sprinkling them enough to moisten them well, keep them in this position for a week, then plant them in boxes or beds of sand (a shady house facing north is preferable) in rows an inch or so apart, deep enough to receive the roots, and allow the buds to be about an inch above the sand. The house must be kept well shaded and the sand freely watered twice a day with tepid water until the flowers begin to develop, the temperature of the sand being kept at not less than 90 degrees. By this method flowers can be had in from sixteen to eighteen days—fresh lots being brought in and planted every eight or ten days to keep up the succession. Beautiful and most interesting ornamental designs for the parlor or conservatory may be produced by planting the Lily crowns in Crocus pots or in pyramidal pots made specially for this purpose, and pierced with holes in the same manner. They require the same treatment as described above, and if exposed to the light and hardened "off" for a few days before they are fully in flower, they will last several weeks in beauty. By taking them in at intervals a succession of different designs may be kept up all winter. Lily of the Valley flowers are now obtained every month in the year, by placing the roots when they arrive, in "cold storage" warehouses. Where the temperature is kept just above the freezing point, the roots can be kept dormant for twelve months, if desired. In this dormant condition they are

placed in the necessary heat and forced into flower at pleasure. Dormant crowns may be procured from November to May.

COOPERIA. Evening Star.

A small genus of bulbous plants from Texas, growing well in the cold frame or planted out in spring in sandy loam and leaf-mould. The flowers, which are pure white and primrose scented, always expand in the evening, and are not usually perfect after the first night. For effect they should be planted in clumps or masses quite close together, and as they bloom successively from May to September, there are always enough in bloom to make the group interesting. Dormant bulbs may be procured from November to May.

CORBULARIA. Hoop Petticoat.

A small genus which has recently been separated from Narcissus. They are quite ornamental and perfectly hardy, but do best with a slight protection of leaves or coarse manure during winter. Its beautiful, clear yellow flowers are shown to great advantage when grown with from five to six bulbs in a five inch pot, or in small pans, if kept in a cold frame in winter and allowed to grow and flower without artificial heat. Dormant bulbs may be procured from October to January.

CRINUM.

A fine genus of bulbous plants growing from a foot and a half to five feet in height. Most of the tall species have large leaves and are evergreen. The varieties of *C. Capense* are hardy south of Washington, and also succeed well in a cold frame. Dormant bulbs of the latter species may be procured from November to March.

CROCOSMIA.

The only species, *C. aurea*, is a beautiful Ixia-like plant with large, deep orange-colored flowers, somewhat resembling those of a Crocus in form. It is not hardy north of Washington, but is an excellent subject for the cold frame or for greenhouse culture, a dozen roots in a ten inch pot forming a very showy specimen for the fall. The general treatment is the same as recommended for the Ixia, which see. Dormant bulbs may be procured from November to May.

CROCUS.

In the great family of bulbous plants it is perhaps difficult to find a genus more beautiful or more generally cultivated than the Crocus. It is generally represented in our gardens by about a dozen species, and the innumerable varieties of *C. vernus*, or spring flowering Crocus, which grow and flower freely in almost any soil or position. The margins of flower beds planted with other bulbs, or of borders running parallel with a walk, in clumps or masses on borders or on the lawn, are positions among many others that may be rendered attractive by a mass of different colored Crocuses. The roots (or more properly corms) can be inserted most regularly in a small trench about three inches deep, placing them a similar distance apart. The leaves should be left alone after flowering is over until they ripen, and the roots need not be lifted unless the place is required for other plants in summer. In this case they may be transplanted and allowed to ripen

eisewhere. As, however, the new corm forms yearly above the old one, they will in the course of a few years push themselves too near the surface, necessitating their being taken up and replanted at least every three or four years. The flowers of the selected named varieties are much larger and are useful and very ornamental when flowered in pots. Six or eight roots should be planted in a pot of about five inches diameter filled with light rich soil, and the pot plunged or buried to the depth of two or three inches in sand or some other material, till the crowns begin to show signs of pushing through, when they should be placed near the glass and well supplied with water. They will not flower if exposed to fire heat, nor must severe forcing be attempted. A few planted in shallow boxes of rich soil will be found very useful to lift when coming into bloom for planting in hanging baskets, etc. Crocuses are often grown in fancy designs, such as Beehives, Hedge-hog pots, Columns, etc., made for the purpose, and are curious and attractive when so grown. The stronger growing sorts also succeed well in water if treated like Hyacinths. Dormant roots may be procured from September to January.

The autumn Crocuses differ from the spring Crocuses, not only in their time of flowering but also in their mode of growth, the purple flowers appearing in profusion from September to November, while the leaves and seed pods seldom appear above the surface till the following spring.

CUMMINGIA.

Half-hardy bulbous plants from Chili, with light blue bell-shaped flowers, which succeed in a light, rich sandy soil, and which should have the protection of a frame or greenhouse. They flower naturally in July.

CYANELLA.

Pretty greenhouse bulbs, with white, blue, or yellow flowers. They grow readily in sandy loam, and like all other plants of the same order require to have a resting season. They bloom in July, and succeed well in a cold frame or pit.

CYCLAMEN.

Cyclamens are among the most beautiful and interesting winter and spring flowering bulbs for the window and greenhouse. Not only are the flowers of striking beauty but the foliage is also highly ornamental, consequently they are very decorative even when not in bloom. They thrive well in a compost of loam, leaf-mould, and sand, to which may be added a little well rotted cow-manure. The pots should be well drained and the bulbs placed at such a depth that the crown be even with the rim of the pot. When well established they should have a good supply of water, and plenty of light and air, to prevent their becoming drawn and spindly. Some of them may require shifting into larger pots, and they will all be much benefited by some clear liquid manure once or twice a week as soon as they begin to blossom. When through blooming, water may be gradually withheld, though they must never be allowed to become quite dry and shrivelled. They are best kept in pots plunged in a shady cold frame during summer. Dormant bulbs may be procured from September to January.

CYCLOBOTHRA. Star Tulip.

Fritillaria-like drooping flowered bulbous plants, white, yellow and purple in color. They are closely allied to *Calochortus*, and require the same general treatment. Dormant bulbs may be procured from November to May.

CYPELLA.

Very pretty little half-hardy bulbous plants with yellow flowers, suitable both for cold frame and greenhouse culture. They prefer a light sandy soil, and if planted out in May and lifted in October, will flower all summer, and will be found quite handsome and interesting.

CYRTANTHUS.

Very handsome greenhouse bulbs from the Cape of Good Hope, succeeding well in sandy loam and leaf-mould. The flowers, which are borne in umbels, on a slender scape, are red, crimson and orange, produced in summer. They require to be grown in pots in the greenhouse, and to be liberally watered when in a growing state.

DAHLIA.

These most showy plants are of easy culture, requiring a deep rich soil with frequent waterings during summer, to bring them to perfection. The various sections—Double large-flowered and Pompone, Single and Cactus flowered, should be planted out in May, about three feet apart, and tied to strong stakes as they advance in growth. At the end of the flowering season, after the first frost, they should be taken up and stored in a dry frost-free place, till spring, when they may be divided and placed in frames for propagation, or planted at once where they are desired to remain. Dormant roots (pot grown) may be procured from December to May.

DIELYTRA SPECTABILIS.

Bleeding Heart,

One of the most ornamental of spring flowering plants, with elegant green foliage and long drooping racemes of bright pink and white heart-shaped flowers. This is deemed one of the finest of all hardy garden plants, and is frequently forced for greenhouse, or conservatory decoration. As it is perfectly hardy, it only requires to be planted in spring where it is to remain. If potted in November, left outside till it has formed new roots, and then brought into a gentle heat, it may be had in flower in February and March. Dormant roots may be procured from November to May.

DIOSCOREA BATATAS. Cin-namon Vine.

A beautiful rapid growing summer climber, with bright green glossy foliage and spikes of deliciously cinnamon-scented white flowers. It is perfectly hardy, the stem dying down in winter, but growing with great rapidity in the spring, so as to cover any trellis or arbor very early in the season. It has no insect enemies, and is little affected by drought. Dormant tubers may be procured from November to June.

DODECATHEON. American Cowslip.

A genus of native hardy perennials that deserves extensive cultivation. Many of the species are exceedingly effective in rockwork, and all are beautiful dwarf border plants. They thrive best in a peaty or light loamy soil, well drained, and like a shady as well as a sheltered situation.

ERANTHIS. Winter Aconite.

One of the earliest and most hardy of early spring flowers, growing well in any soil or situation, sending up its pretty yellow blossoms long before the snow disappears, and continuing in flower for several weeks. The tubers may be taken up when the leaves have perished, or they may be left in the ground for several years. Dormant tubers may be procured from September to December.

ERYTHRONIUM. Dog's-tooth Violet.

One of the hardest of early flowering bulbous plants, succeeding well in almost any light soil, but preferring a mixture of loam and leaf-mould. They have a much better effect when planted in groups, than if placed in small quantities separately. The bulbs should be planted about three inches deep, and if left untouched afterwards, an annual top dressing of good soil will be advantageous. The flowers appear in April and May and are very attractive at that early season. Dormant bulbs may be had from September to December, but should be planted as soon as they can be procured.

EUCHARIS. Lily of the Amazon.

A small genus of free flowering tropical bulbs, with beautiful wavy-white flowers of delicious fragrance. To grow them well, the soil should be composed of turf loam, leaf-mould, sand, and well rotted manure, in about equal proportions, and the pots liberally drained. While they are growing freely, they should have plenty of water, and weak liquid manure twice a week. The temperature of the house should not fall below 70 degrees during winter, and they should have a good share of sunshine. If wanted to flower during the winter months, water should be used sparingly from August to October. The bulbs should be disturbed as little as possible, repotting when necessary without division.

FERRARIA. Tiger Iris.

A genus of interesting half-hardy dwarf bulbous plants, succeeding well in a cold frame or in pots in the greenhouse. For indoors they should be potted in November, in sandy loam and leaf-mould, and watered sparingly until they commence to grow, when they should have abundance of air, sunlight and water. They will flower from April to June, and when gradually rested should be kept perfectly dry until started again.

FREESIAS.

These are amongst the most beautiful of all Cape bulbs, growing about nine inches in height, and producing six to eight flowers upon a stem. They are very handsome, possessing a peculiar

grace of form, and their fragrance is most delightful. As cut flowers, they are extremely valuable; the unexpanded flowers opening in water fill the air with a most delicate perfume, and their endurance is really remarkable. They force very easily and should be potted in succession from the end of July, putting about six bulbs in a five inch pot. They succeed best in a mixture of good fibrous loam, leaf-mould and well rotted manure, in equal proportions, with the addition of a fair sprinkling of sand to ensure drainage. After potting, place in a cold frame, and water very sparingly until the bulbs start into growth. As soon as the foliage appears, plenty of water may be given, and they can be removed to the house or a cold greenhouse as occasion demands, giving them as much light as possible. As the flower-spikes appear, weak manure water can be given. Dormant bulbs may be procured from August to January.

FRITILLARIA. Crown Imperial.

Very showy early flowering bulbs, mostly attaining a height of from two to three feet, though *F. Meleagris*, the Guinea-hen flower and its varieties, are dwarf. *F. imperialis*, the Crown Imperial, is a handsome plant of stately growth, producing its pendant bell-shaped flowers in clusters. The bulbs should be planted four or five inches deep early in fall, and are greatly benefited by a mulch of leaves or coarse manure just before the ground freezes up. They bear forcing well and form very bold and handsome subjects when placed in the conservatory in company with dwarf growing plants. Dormant bulbs may be procured from September to January.

GALANTHUS. Snowdrop.

A beautiful, early spring-flowering bulbous plant, too well known to need any description. It thrives in any good garden soil, and should be planted in September or October very closely together in groups or masses, where they can be left undisturbed for years to appear suddenly in flower with the earliest approach of spring. Dormant bulbs may be procured from September to January.

GALTONIA. (*Hyacinthus.*) CAN-DICANS. Cape Hyacinth.

A most beautiful and noble plant for flower beds or for planting in groups for lawn decoration. The creamy-white flowers, one to two inches across, are borne on spikes often four to five feet long, giving it the appearance of a monster Hyacinth. It is quite hardy, and can be left in the open ground without any misgivings as to its safety if given a protection of leaves or rough manure during winter. A strong root will produce a succession of flower spikes, and this tendency will be assisted by cutting off each spike immediately after it has ceased to be attractive. Dry bulbs should be planted in April or May, and if taken up in fall should be looked after after the first severe frost, dried off, and wintered over like a Gladiolus. Dormant bulbs may be procured from December to June.

GESNERA.

An extensive genus of greenhouse tuberous-rooted plants from Mexico and South America, remarkable for the beauty of their foliage, which

is singularly marked and soft as velvet, and also for their long spikes of brilliant colored flowers, mostly scarlet and yellow. They require a light, rich soil, a moist atmosphere with a temperature of 65 degrees rising to 80 degrees with sun heat, partial shade in bright weather, and a liberal supply of water when in a growing state. Like the Gloxinia, they are impatient of water overhead, which has a tendency to make them become rusty and to rot off the leaves and flowers in dull weather. For the purpose of having a continuous succession of bloom, the plants should be started at three different times, say the early part of April, May and June, a sufficient number of tubers being put in on each occasion to furnish the plants required for the period. Those started into growth first will come into bloom by the end of September, and the others will follow in succession through winter and spring. When finished flowering, dry off gradually and store in a warm dry place until wanted for the following season.

GLADIOLUS. Sword Lily.

This extensive genus is now amongst the most popular of out-door summer and autumn flowering bulbous plants. They are remarkable for their ease of culture, grace of habit, and for the beauty and intense coloring of the flowers, varying from the most brilliant scarlet to pure white, and from clear rose to pure yellow and bright purple. They may be planted as early in the spring as the ground can be got in order, and successive plantings every two weeks may be made till the 1st of July, which will give a succession of fresh spikes of flowers up till frost. It is now also a common practice with florists to reserve Gladiolus bulbs until August, which are then planted in rich soil in boxes four or five inches deep. The boxes are kept out of doors until frost, when they are placed in a cool greenhouse where they flower from November to January, at a time when they command good prices. A number of the early flowering sorts are also forced for early spring, many finding them a profitable crop, as they take up but little room. Large, sound, well-matured bulbs only should be used for this purpose. Start the bulbs in four inch pots, and when well rooted repot into six inch pots. Use good, fresh loam with at least one-third well rotted manure, giving them careful attention as to watering, etc. Do not start the bulbs the first year of forcing till about the 1st of January, and after they have flowered, ripen them off gradually, and they may be again started in August or September for early flowers the following season. The splendid race of hybrid hardy Gladioluses differ from all others by characters so marked and varied as to form a distinct section, their chief characteristic being the presence of a large yellow blotch surrounding a maroon spot on the lower segments of the flower. They are of robust and vigorous growth and quite hardy, though like all other bulbous plants they are the better of protection during winter. The spikes are frequently branched, thereby adding greatly to their effect. Dormant bulbs may be procured from November to May.

GLORIOSA.

Very handsome climbing greenhouse plants, with Lily-like flowers, bright yellow or orange in color, thriving well in a compost of loam, leaf-mould, and sand. They should be started into growth in spring, and will require to be supported

with sticks or trellises. They bloom in June and July, and should be kept perfectly dry and warm during the resting season.

GLOXINIA.

Most charming greenhouse tuberous-rooted plants, of dwarf habit, producing their large and splendid flowers of almost every shade of color in the greatest abundance, and if started into growth at intervals, a succession of flower may be had nearly the whole year round. They succeed best in a compost of loam, leaf-mould and sand, and from the time they are started into growth should be kept as close to the glass as possible, only having sufficient shading to prevent the bright rays of the sun from scorching the leaves. They enjoy a moist atmosphere and a rather high temperature during the early stages of their growth, care being taken however not to water them overhead, as this rots the leaves and flowers or causes them to become rusty and disfigured. As soon as they begin to bloom, if brought into a cool house the flowers will be of greater substance and last much longer than when developed in a shady moist place. They are also exceedingly useful if planted out in a warm frame and shaded from the bright sun, for growing for cut flowers during the summer months. When done flowering they should be dried off gradually and stored in dry sand in a warm dry place for the winter. Dormant tubers may be procured from September to May.

HÆMANTHUS. Blood Flower.

Few plants are more singular in character, or possess a more striking contrast to all others in cultivation than the Hæmanthus. The flowers are brilliant in color, novel in arrangement, last a long time, and, in most of the species, the foliage striking and curiously marked. A mixture of sandy loam and peat, or leaf-mould, suits these plants best, and they flower most freely when under-potted. They succeed well in a warm pit or conservatory, where a temperature of from 50 to 60 degrees may be commanded during their growing season, to be followed by a lower temperature during their resting period.

HELLEBORUS. Christmas Rose.

A most interesting class of hardy plants, growing freely in almost any situation, flowering in great profusion in early spring, and which, if grown in the house, or in frames, will bloom from December all through the winter months. The flowers are two to three inches in diameter, and range through all shades of white, red, rose and purple, while some are shaded and spotted with other colors. *H. niger*, the true Christmas rose, is the favorite for greenhouse culture as it produces its pure white waxy flowers in profusion for the holidays. They should be planted in well prepared and manured ground, and receive during the growing season a little liquid manure occasionally, as upon the size and substance of the leaf will depend the size and quantity of the flowers. Strong clumps may be procured from November to March.

HEMEROCALLIS. Day Lily.

Valuable border plants having elegant foliage and handsome flowers, varying from orange to clear yellow. The flowers open consecutively, and each one remains in perfection for little more

than a day—hence its name. Although perfectly hardy, the bear forcing well in a temperature of 50 degrees, Dormant roots may be procured from November to May.

HIPPEASTRUM. (See Amaryllis).

HOMERIA.

A small genus of pretty half-hardy bulbs from the Cape of Good Hope. They succeed well in the open border, but require the protection of a frame or greenhouse during winter. They require a compost of sandy loam and leaf-mould, and plenty of water when in a growing state.

HOTEIA JAPONICA. (A synonym for Spiraea Japonica).

HYACINTH.

This is doubtless one of the most useful and popular of hardy bulbs, and is a universal favorite in the most extended application of the word. They are not only largely grown for forcing into flower during the dull, cheerless months of winter and early spring, but they are equally desirable for planting in beds or in the garden border. For forcing, the bulbs should be planted about the middle of September or beginning of October, in a soil composed of turfey loam, well decayed cow manure, and leaf-mould in about equal proportions, with a liberal addition of sand to keep the soil porous. Five inch pots are a good size to use, although smaller will do, and in potting leave the top of the bulb level with the surface of the soil, which should be moderately moist, and should not be pressed too firmly. Then water freely to settle the soil, and place them out of doors or in a cool cellar on a bed of ashes or coarse sand, and cover with the same material or newly-fallen leaves, to a depth of five to six inches. When well rooted, which will be in from five to six weeks, they may be removed to a cold pit or frame, and thence to the house or greenhouse, as required, but care should always be taken that the bulbs are well rooted before bringing them to the light, as their successful cultivation depends much on this point being well attended to. To keep the foliage dwarf, and perfect the coloring of the flowers, Hyacinths when growing should have a liberal supply of clear manure water (which, however, should be discontinued after the plants are in full bloom), plenty of air, and be kept as near the light as possible. It will also much improve their appearance and extend their blooming season if they can be sprinkled overhead occasionally with clear tepid water.

Hyacinths grown in glasses are elegant and suitable ornaments for the parlor or sitting-room, and can be flowered in this way with very little trouble. The single varieties are more generally used for this purpose, as they produce finer spikes of flowers than the double. Fill the glass so as almost to touch the base of the bulb with clear water, putting a small piece or two of charcoal in each glass, as this is of service in keeping the water pure. They should then be placed in a cool, dark cellar or similar situation until the roots have nearly reached the bottom of the glass, which requires usually from six to eight weeks' time, when they may be brought gradually to the light, afterwards giving them plenty of light and air, but avoiding draughts or bright sunshine. The water

should be changed about once a week, and when of sufficient height the flowers should be supported by a wire to prevent overbalancing. The Hyacinth, in fact, is one of the most accommodating of bulbs. It will grow and flower floating in an aquarium on a piece of cork or board with a hole cut in it just enough to steady the bulb; in a potato, a beet-root, a turnip, a parsnip, or a good sized carrot, and one of the prettiest indoor ornaments may be made with some of these reversed, the top excited into growth, part of the root left, and cut into a receptacle for one or more bulbs in full flower, thus combining in an original and truly refreshing manner—the great secrets of all effective decoration and three chief sides of beauty—verdure, form, and color. What, for instance, more beautiful than the young leaves of the darkest topped beet or feathery-leaved carrot surmounted by a crown of the purest white Hyacinths, both forced to reveal their full compliment of beauty in the dreary days of winter.

Another very pretty idea in growing or forcing Hyacinths in rooms is to procure a large, coarse sponge, make several incisions in it, and place bulbs in them. The whole is then placed in a vase of water and a small quantity of rape seed scattered over the surface, which soon covers it with a moss-like mantle, adding greatly to its beauty and attractiveness. A modification of this "idea" could be easily carried out with sphagnum and any common vessel or small tank in which, by its aid, miniature bedding arrangements might safely be ventured upon.

Hyacinths in beds or borders, out of doors, may be planted from October till frost sets in. They succeed in any well drained, good garden soil, which, however, should be dug at least eighteen inches deep. The bulbs should be planted five or six inches apart, and not less than four inches deep, measuring from the top of the bulb; a little sand placed below and around the bulbs permits the water to drain off in heavy soils. The bed should be in a sunny position, if possible, and protected during winter by a coating of rotted manure, which not only acts as a protection in winter, but a mulch in spring as well. As the bulbs may be taken up and dried off as soon as the leaves acquire a yellow color, the beds will be vacant in time for the ordinary bedding plants, so that the brilliant display of spring may be followed by another equally as brilliant perhaps, but in character altogether different.

If it is found necessary to remove the bulbs immediately after flowering, they should be carefully taken up, the leaves damaged as little as possible, and "heeled in" in some slightly shaded place until the foliage is quite withered and the bulbs thoroughly ripened, when they may be taken up, cleaned, and stored in a cold dry shed or cellar, until wanted. If the largest and heaviest of these bulbs are selected and potted up early in September, they will, with the usual treatment, be found to come into flower at least three weeks earlier than any of the imported Dutch bulbs, and though the spikes of flower will not be so large, they will be found to be very useful for cutting, &c., for the holidays. Hyacinths should be taken up, dried off, and replanted every year, as, if left in the ground the second season, they always deteriorate and are sure to come up irregular and unsatisfactory, while, if not transplanted until October or November, they will be found to have made so many young roots that the bare transplanting, however

carefully done, is sure to cripple and seriously injure them.

The early white Roman Hyacinth is a valuable and beautiful variety and is very largely used for forcing for winter flowers by florists in all large cities, New York alone using over a million bulbs every season. By a succession of plantings, beginning in September, they are had in flower from November to May, and even later. The method of culture is to place the bulbs thickly together in pots or shallow boxes, placing them in a cold frame or out of doors, covering them up so that they do not get severely frozen. They should remain in this condition for at least four weeks before they are brought in to force, which should be done gradually, beginning at 50 degrees, and advancing to 65 degrees or 70 degrees, a succession being secured as occasion or necessity demands. The flowers, which are smaller than those of the ordinary Hyacinth, are produced in great profusion, each bulb producing on an average three or four spikes of delicately-scented pure white blossoms. They are not hardy north of Washington, but succeed admirably as a late crop, with the protection of a cold pit or frame.

IRIS. Rainbow Flower.

These beautiful plants are most suitable for flower borders, being quite hardy and growing well in any good garden soil. The English and Spanish bulbous varieties should be planted from September to December, in clumps, in front of a shrubbery or herbaceous border, when they may be seen to the best advantage, the crown of the bulb not more than three inches below the surface, and as the new bulb is annually formed below the old one, it will be found necessary to transplant them every three or four years. In the *Iris Germanica* section (the "Fleur-de-Lis" of France) may be found the most diversified shades of color, ranging through richest yellows, intense purples, delicate blues, soft mauves, beautiful claret reds, whites, primroses, and bronzes of every imaginable shade, rivalling in beauty the finest orchids. They are perfectly hardy, thrive anywhere, and bloom luxuriantly, particularly if plentifully supplied with water, or if planted in moist situations or on the banks of ponds, &c. These flower in May and June, closely followed however by the 'Japan Iris' section (*Iris Kaempferi*), which lengthens out the season until midsummer, and the magnificence of which, in size, and richness of coloring, is unsurpassed. The flowers are of enormous size, averaging from six to eight inches across, and of indescribable and charming hues and colors, varying like watered silk in the sunlight; the prevailing colors being white, crimson, rose, lilac, lavender, violet, and blue, each flower usually representing several shades, while a golden yellow blotch surrounded by a halo of blue or violet at the base of the petals, intensifies the wealth of coloring. The Japan Iris is perfectly hardy, attaining its greatest perfection if grown in a rich, deep moist soil, or if plentifully supplied with water. Complaints are often heard that plants of these Irises are difficult to flower, and the fact is, that if not carefully transplanted (which should be done in March or April) they do not flower the first year, but are, on that account, much finer the second season. In short, they must be well established before they can produce fine flowers. Strong dormant roots may be procured from November to May.

ISMENE. (See Pancratium).

IXIA. African Corn Lily.

Beautiful little winter flowering bulbs from the Cape of Good Hope, bearing spikes of large, showy flowers, various in color, and exceedingly attractive when fully expanded by sunshine. As they are not hardy north of Washington, they should have the protection of a cold pit during winter and be planted in September about three inches deep and as far apart, surrounding the bulbs with an inch or so of sand. Grown as pot plants for winter blooming, five or six bulbs in five inch pots make lovely and useful plants for greenhouse or home decoration, while their abundance of fine spikes of bloom are charming for cutting for loose flowers, vases, etc. Dormant bulbs may be procured from September to March.

IXIOLIRION. Ixia Lily.

A small genus of rare and beautiful bulbous plants from Asia Minor. They have simple, erect stems, with terminal clusters or racemes of sky-blue flowers, and though quite hardy, it is advisable to give them a position in a cold pit or frame to protect their blossoms, which not only last long in good condition on the plants in spring, but are also very enduring in a cut state.

JONQUIL. Narcissus Jonquilla.

A species of the Narcissus family, highly prized for their graceful habit of growth and the profusion of deliciously sweet-scented, deep, yellow-colored flowers. They are much prized for pot culture, requiring precisely the same treatment as that to which Hyacinths are subjected. Grown in a cold frame they are exceedingly useful for cutting for vases, etc., and being perfectly hardy, a succession of bloom will follow out of doors in spring. Dormant bulbs may be obtained from September to March.

LACHENALIA. Cape Cowslip.

Very interesting and showy greenhouse bulbs from the Cape of Good Hope, having long, lanceolate leaves, often spotted, and erect stems bearing pendulous flowers of various colors, yellow predominating. They should be potted eight or ten in a five inch pot in the fall, in light, fibrous loam, with a mixture of leaf-mould and sand, and only moderately watered till they have started to grow, but when in full growth they are greedy of water, and do well under the semi-aquatic treatment of a pan of water under the pots. Dormant bulbs may be procured from September to January.

LEUCOCORYNE. White Club-flower.

Very pretty half-hardy bulbous plants producing numerous Brodiæa-like heads of bloom in August. They may be cultivated either in the cold frame or in the open ground, if they are taken up and preserved in sand through the winter. The flowers are large for the size of the plant, and are either white or lilac.

LEUCOJUM. Snowflake.

Beautiful hardy bulbs, growing to the height of twelve to eighteen inches, and producing, when well established, enormous quantities of Snow-

drop-like pure white flowers, tipped with green. *L. vernum*, the spring Snow-flake, can be forced into flower about January, and is most useful for cutting. *L. aestivum*, the summer Snow-flake, is larger than the foregoing, producing its large heads of bloom after that favorite flower is past. They grow freely in any garden soil, and should be planted in clumps in the borders, among shrubs, or in conjunction with other bulbs for bedding. *L. autumnale* flowers in October. Dormant bulbs may be procured from October to January.

LIBERTIA.

A small genus of half-hardy bulbous plants of dwarf habit, with delicate white flowers, which are produced in umbels. They flower in early spring in the cold frame, and grow well in a compost of sandy loam, peat and leaf-mould.

LILIUM. Lily.

No class of plants capable of being cultivated out of doors possesses so many charms; their stately habit, rich and varied colored flowers, often deliciously fragrant, and easy culture, rendering them so distinct from all other hardy plants that no collection, however select, should be without a few of the choicest sorts. They are also excellent subjects for the shrubbery border, if planted in groups between hardy Azaleas, Rhododendrons, etc., the soil suitable for these plants being particularly adapted for the growth of many kinds of Lilies, more especially of our native and California species. The best time to transplant the bulk of the Lilies is in October and November, but they also do very well when removed in early spring, care, however, being taken that the bulbs do not get dry. All of them delight in a light, rich soil, such as is afforded by a mixture of loam, leaf-mould and well rotted cow manure, and as one uniform treatment is applicable to the whole of the species, all may be grown together in one bed or border, and remain undisturbed for a number of years, frequent removals being not only unnecessary but injurious. Plant about four or five inches deep, and make sure that the situation is well drained, so that the water will not collect there in winter. A good coating of well rotted manure will prove highly beneficial, for though the most of the lilies are quite hardy they are all impatient of being frozen; this not only acts as a protection during winter, but forms an excellent mulching for summer. The California species, such as *L. Washingtonianum*, *L. Parryi*, *L. Humboldtii*, etc., require to be planted ten to twelve inches deep, and heavily mulched to keep the roots cool in summer.

L. Harrisii, the Bermuda Easter Lily, in now forced in large numbers by florists, for cut flowers in winter. The bulbs should be potted as soon as received in August, and placed out of doors in any well drained situation, and covered with four or five inches of rough manure, leaves, or any non-conducting material that will prevent their drying out by the sun, and, at the same time, be as cool as possible to encourage root action. Potted thus early, they will form roots sufficient to enable them to be brought into the greenhouse by the first of October, where, if kept in a temperature of sixty degrees at night, with ten or fifteen degrees higher in day time, they will give a crop of flowers by Christmas. Like all other bulbs, succession crops should be brought along as necessity requires, and as large quantities are used for Easter decorations,

an extra supply will be in order for that season. After the bulbs are done flowering, water should be withheld for eight or ten days, they should then be placed in a cold frame, or sheltered spot, the bulbs packed close together, with sufficient soil thrown over them to fill up the interstices, then cover with three or four inches of dry leaves and, if in mid-winter, they must be covered with sashes; if in spring, the covering of the leaves alone will be sufficient to protect against frost. The bulbs so treated will flower freely again in August in the open ground, but will not do as well to force for the succeeding winter, if wanted for that purpose, and will require another year's growth to be in proper condition; for that reason it is the most economical plan to use the Bermuda bulbs that have been specially grown for winter forcing. *L. Harrisii*, though perfectly hardy and doing splendidly south of Washington, is not entirely hardy here; it however succeeds well in a cold frame, or if protected by five or six inches of rough manure or leaves. *L. longiflorum* and *L. candidum*, the Annunciation or St. Joseph's Lily are both quite hardy, and are largely used for forcing for Easter. They require exactly the same treatment as *L. Harrisii*, but neither of them can be made to flower so early. Dormant bulbs of the various species may be procured from August until May.

LYCORIS, Golden Lily.

A very pretty and choice genus of greenhouse bulbs from China, succeeding well under the same treatment as the greenhouse Amaryllises. They flower in June with the exception of *L. aurea*, which flowers in October. Dormant bulbs may be procured from September to December.

MERENDERIA.

A pretty little hardy bulbous plant from the Caucasus. *M. Caucasia*, the best known species, is very like *Bulbocodium vernum*, but flowers in autumn, and grows freely in the garden, with the same treatment that is given to other hardy bulbs.

MILLA, Mexican Star Flower.

A genus of hardy Mexican bulbs of slender growth, having small rush-like foliage and tall flower stems, carrying one, two and sometimes three blossoms, starry in outline, wax-like in texture, and pure white. They flower in July and August, continuing a long time in succession. It may be planted out of doors in April or May, in a sandy loam, exposed to full sunshine, and shows to advantage when planted thickly in groups or clumps in the front of the shrubbery or herbaceous border. Dormant bulbs may be procured from November to May.

MONTBRETIA.

A small genus of half-hardy bulbous plants from Southern Africa, the best known of which is *M. Pottsii*, with bright red flowers flushed on the outside with pale red, borne on spikes six to nine inches long and twelve to twenty flowered. *M. Crocosmiflora* is a hybrid raised between *M. Pottsii* and *Crocosmia aurea*. It is a perfectly hardy, Iris-looking plant, with scapes a foot or more high bearing many flowered panicles of bright orange-scarlet flowers from July until frost. It is one of the most floriferous and showy of autumn

flowering, hardy blooming plants, and like the *Gladiolus*, varieties have originated from seed and are now cultivated under distinctive names. Plant in April or May, three inches deep, in groups or in rows where they are to remain, and protect slightly with some well-rotted manure during winter. Dormant bulbs may be procured from November to May.

MORÆA.

Bulbous plants with very handsome flowers, nearly allied to the *Ixia*, and succeeding well under the same treatment. They are generally grown in pots, and when done flowering should be kept dry in the soil till they begin to grow in spring.

MUSCARI, Musk or Grape Hyacinth.

A small genus of hardy bulbous plants producing little round blue or white bells, so arranged on the spike as to resemble a bunch of grapes. They are admirable plants for permanent edgings, or for grouping on the lawn or in borders, only requiring to be planted where they may remain many years without being disturbed. The feathered Hyacinth is a variety of the above, the spike of which, instead of being formed of bells as in the other sorts, is a feathery plume. It is a beautiful variety and lasts a long time in perfection. Dormant bulbs may be procured from September to January.

NÆGELIA.

A genus of deciduous greenhouse Mexican plants, formerly included with *Gesnera*. The leaves are covered with short crimson hairs which give them a rich, velvet-like appearance. They have erect racemes of large, showy flowers, mostly bright scarlet, and are cultivated as recommended for *Gesneras*, which see.

NARCISSUS, Daffodils, &c.

A genus, remarkable alike for the elegance, fragrance, and precocity of their flowers. They succeed best in a thoroughly drained, tolerably rich soil, and if the position is one partially shaded from the hot sunshine in spring, the flowers will retain their beauty for a much longer period than if more fully exposed. The hardy sorts when grown in beds or open border should be planted in September or October in deeply dug, well manured ground, at a depth of not less than three inches by four or five inches apart. When planted in beds, and it becomes necessary to remove them to make room for other plants, 't should be done as soon as their beauty is past. As the bulbs are by no means mature at this time, they should be carefully taken up and "laid or heeled in" in some slightly shaded place until the foliage is quite withered, when they may be taken up, dried and stored away in a cool, dry place until wanted for the next planting season. They are well adapted for grouping in the herbaceous or shrubbery border, or in the grass by the sides of woodland walks, in open spaces between or in front of trees and shrubs, in cemeteries, or in any situation where the flowers may be readily seen on their appearance in spring. The foliage should be allowed to ripen naturally before being removed, at which time an annual top dressing of

loam and well decayed manure may be applied with advantage.

The various varieties of hardy *Narcissus* are apt to get weak and spindly and refuse to flower by being kept too long in one place, the bulbs getting overcrowded and consequently weakened. Every three or four years, therefore, in August or September—preferably August, as the bulbs are quite dormant at that time—the bulbs should be carefully taken up and divided, the large bulbs replanted in well enriched soil in groups of five to eight or more, about three inches apart. A top dressing in winter of some short, well decayed manure will add greatly to their vigor, and a few waterings with liquid manure when the plants are breaking through the ground in early spring will cause them to produce astonishingly large and handsome flowers.

Blooms required for decoration, are best cut just before they expand, and placed with their stems in water in a cool room; they will soon open to their fullest extent, and besides being clearer and brighter in color, will retain their freshness and beauty for a much longer period than if allowed to expand on the plant. Dormant bulbs may be procured from October to March.

Varieties of the *Polyanthus Narcissus* are especially suited for pot culture, and should be potted and grown in the same way as recommended for *Hyacinths*. They are very free flowering, and produce beautiful trusses of deliciously scented flowers, varying from deep orange and primrose to the purest white; all the varieties will force well, and they are exceedingly valuable for supplying cut flowers in winter and early spring. The Double Roman and Paper White *Narcissus* if potted early may be had in bloom before Christmas. The latter is forced in immense quantities, and next to the Roman *Hyacinth* and *Tulip* is the bulb most extensively grown for this purpose. When grown on a large scale they are planted in shallow trays or boxes of soil at a distance of one to two inches apart, and treated exactly as described for Roman *Hyacinths*. The hardy varieties of *Narcissus* or *Daffodils* (*N. Von Sion*, etc.), of which large quantities are now used, are forced in the same manner, it being, however, imperative for their success that they be well rooted in the boxes or pots before being brought into heat, as if they are insufficiently rooted failure will result. To be in a proper condition to force, the pots or boxes should be matted around with the roots. As they come into flower a liberal supply of weak liquid manure will be found very beneficial.

The *Chinese Sacred Lily* or *Joss Flower*, is a variety of *Polyanthus Narcissus* grown by the Chinese, to bloom at the advent of their New Year, which occurs in February. The bulbs are grown by a method known only to themselves, whereby they attain great size and strength, thus insuring luxuriant growth and a remarkable profusion of bloom. They grow well, potted in a light, rich soil in the ordinary manner, but make most interesting and beautiful objects when flowered, as they generally are in shallow ornamental bowls or vases containing water, the bulbs being surrounded by pebbles to prevent their toppling over when in bloom. By making an incision crosswise on each side, and about one inch from the top of the main bulb, a fresh lot of leaves and flowers will issue. Care must be taken not to injure the bulb, all that need be done is simply cutting the skin to liberate the leaves. By this method one bulb will produce from six to

twelve spikes of bloom. The flowers, which are borne in clusters on tall scapes, are white with a golden yellow centre and deliciously fragrant. The bulbs will bloom in from six to eight weeks' time after planting, and with a few bulbs started at intervals a succession of flowers may be had throughout the winter. To start the bulbs they should be kept in a dark closet or cellar until well rooted, which requires about ten days time, after which they should be placed in a warm, light window and kept daily supplied with water. Dormant bulbs may be procured from September to March.

NEMASTYLIS.

Half-hardy bulbs, natives of Mexico, and of the Southern United States. They are all of dwarf growth with showy blossoms, which, however, are fugacious, though produced continually. They thrive well planted out in a cold frame in well drained sandy loam, or in a warm border planted out in May and taken up in the fall like Tigridias.

NERINE. Guernsey Lily.

A genus of showy bulbous plants, the best known of which *N. sarniensis* is most useful for flowering in the fall months. They should be potted as soon as received, in a light rich sandy loam, and if placed in a window or greenhouse will soon bloom. After flowering, and the leaves appear, they will require more water, heat and light to enable them to mature the foliage. The bulbs from this stage will be much benefited by weak manure water once or twice a week. Continue this nurturing treatment till the leaves begin to turn yellow, then gradually withhold water and store in a dry cool place when dormant. As soon as fresh growth begins, which may be any time from June to October; top-dress the pots with good rich sandy soil, and place them in their flowering quarters. Dormant bulbs may be procured from September until January.

ORNITHOGALUM. Star of Bethlehem.

A large genus of which *O. Arabicum* is the best known and most largely grown. It is a most beautiful species, bearing on a tall scape a cluster of fifty or over milk-white, star-shaped flowers, with a glistening black blotch in the centre of each and having a distinctly aromatic perfume. It grows best in a rich sandy loam, succeeding admirably in a cold frame or pit, where it may be planted in September or October, about three inches deep by four inches apart. It is now grown largely in pots or boxes for cut flowers, receiving treatment similar to the Hyacinth, and may be had in bloom at any time during winter by being brought into heat at intervals as required. Dormant bulbs may be procured from October until May.

OXALIS. Wood Sorrel.

Charming little half trailing or bushy plants particularly adapted for pot culture and hanging baskets. The foliage alone is very attractive, and when in flower, they are exceedingly pretty. The pots should be well filled, from six to a dozen bulbs in a five or six inch pot; for the smaller species three or four inch pots are large enough.

A good turfy loam with an addition of leaf-mould and sand suits them admirably; they may be potted at any time during winter and placed near the glass or window to keep them stocky and dwarf. Several of the species as *O. Deppii*, *O. lasiantha*, &c., are interesting and showy plants for outdoor culture, either grown as borders to other plants, or when forming large masses or grown in groups or clumps. The bulbs should be kept quite dry when at rest, as this serves to favor their more abundant blooming. Dormant bulbs may be procured from September until May.

PÆONIA CHINENSIS. Herbaceous Pæony.

Magnificent old garden favorites, producing abundantly, large, bold, perfectly double flowers of rich, varied and pleasing colors. They are invaluable for borders and shrubberies, and are also extremely useful for cutting. They should be planted in well prepared soil, and in summer, if convenient, give a plentiful supply of liquid manure occasionally, to encourage a rapid development, as the plant is decorative in proportion to its size. Dormant roots can be procured from October until March.

PANCRAZIUM. Sea Daffodil.

An extensive genus of hardy and half-hardy plants, several of which are in cultivation. *P. (Ismene) calathinum*, the Peruvian Sea Daffodil, bears handsome clusters of large, striking, very fragrant, pearly white flowers. The bulbs should be taken up before the first frost, and after being carefully dried should be stored in a warm, dry place for the winter, and planted out again about the 1st of May; they will then commence flowering in July. It is also admirably adapted for pot culture, and can be forced into flower, as desired, in six or eight weeks' time. The single flowers last well when cut, and are much used in funeral wreaths and other designs. If whole stems are cut the flowers will continue opening in succession in a cool room for two or three weeks. (This species is often found in cultivation under the name of Ismene Knightii.) Dormant bulbs may be procured from November to May.

PENTLANDIA.

A small genus of very showy greenhouse bulbous plants, with vermillion-colored flowers from Peru. They grow well in a compost of sandy loam and leaf-mould, and may be cultivated successfully in a cold frame or pit, though they are generally grown in pots in the greenhouse, flowering in May and June.

PHÆDRANASSA. Queen Lily.

A small genus of bulbs with flowers about two inches long, light pea-green in color, tipped with pink, and borne in large clusters on a scape one to two feet in height. The bulbs require a long season of rest after flowering, and should be kept comparatively dry during the winter months. Being of extremely robust habit they succeed well under good treatment in a cool greenhouse, and soon form well-furnished and valuable specimens suitable for adorning the grounds, piazza, etc., during summer.

PUSCHKINIA.

A beautiful family of spring flowering bulbous plants, of which *P. Scilliodes*, with light blue flowers is the best known. It is perfectly hardy and succeeds best in a rich, sandy soil. It is an admirable plant for edging small beds or borders of other early spring flowers, or for massing in the shrubbery, etc. Dormant bulbs may be procured from September to January.

RANUNCULUS.

Half-hardy, tuberous-rooted plants, the flowers of which are unrivalled for lovely form and bright and attractive colors, ranging through all shades of white, crimson, yellow, purple and black. They may be planted three inches deep by about the same distance apart, in frames or pits, from September to November, where they will flower profusely in spring. They are admirable plants for forcing, and if placed five to seven in a five inch pot in good, rich, sandy loam and plunged in a frame or protected from frost for six or eight weeks, they may be introduced to the house or greenhouse, as desired. The scarlet Turban Ranunculus is about two weeks earlier in blooming than the other sorts, but both are desirable for forcing. For out-door culture, plant the Turban Ranunculus from October to December, and the Persian varieties in March or April, covering the early plantings during severe weather with dry litter or leaves, removing it in spring before the foliage gets injured. In April and May, during dry weather, water the beds freely, if necessary two or three times a week, taking every care to wet the foliage as little as possible. Dormant tubers may be procured from September to March.

RICHARDIA. Calla Lily, of Lily of the Nile.

This old favorite is so generally known that any description is unnecessary. It is largely grown for winter blooming, and though it will grow and flower during the entire season without resting if sufficiently fed by being repotted, yet it is more profitable to dry it off, say from June to October. The roots thus rested will flower more abundantly and produce fewer leaves, and thus twice the number of flowers may be obtained from the same space. Dry, well ripened tubers as grown in Bermuda and California, are esteemed by many as superior for forcing and winter flowering purposes, they come into bloom quickly, and making less and smaller foliage, require less room. Dry tubers planted in four inch pots will give the same or better results than plants that have been kept growing or only semi-dormant will do in five or six inch pots. Dormant tubers may be procured from September to January.

The yellow Calla, *R. hastata*, is identical in all respects with the foregoing, excepting that the flowers are of a light yellow color, with a chocolate-colored throat. The Spotted Calla, *R. albo maculata*, is very ornamental, even when not in flower, the leaves being beautifully marked and spotted with white. The flowers are smaller than the common Calla and are white with a purple throat. It goes to rest in winter, starting into growth in March or April, and makes an excellent plant either for growing in pots or for planting out in a mixed border, or as an edging to a bed of

Cannas or other tropical-like plants for the summer. Dormant tubers may be procured from November to May.

RIGIDELLA.

A small but beautiful genus of Mexican bulbous plants, with bright flame-colored flowers, succeeding best in a light, rich soil out of doors. It flowers similar to and requires the same treatment as the Tigridia.

ROMULEA.

A genus of pretty Iris-like bulbs with generally rose-colored flowers, produced from April to June and succeeding best if planted in a cold pit or frame in a compost of sandy loam and leaf-mould.

SCHIZOSTYLLIS. Caffre Lily. Crimson Flag.

S. coccinea, the best known species, is a very pretty, half-hardy, bulbous plant, belonging to the Gladiolus family. The leaves are neat and glossy, and the flowers are rosy scarlet, produced in November and December. It must, therefore, be flowered in the greenhouse, but if planted out in May, and potted carefully in October, it will, in a cool house, give large quantities of flower up to January and even later, as the more flowers are cut from it the more spikes are produced.

SCILLA. Squill. Star Hyacinth.

Beautiful dwarf, spring-blooming, hardy, bulbous plants, of the easiest culture, and which are worthy of a place in the most select border. They may be used with good effect as an edging to beds of spring flowers, or in clumps or masses in shrubberies or borders. They should be planted about two inches deep in October, if possible in a situation where they will be undisturbed for years, as crowding from their natural increase does not seem to injure them. *S. Peruviana* has dark blue flowers produced in long racemes, and is an excellent plant for pot culture as well as for the cold frame or pit. *S. Sibirica* and other dwarf sorts when potted and grown on slowly in a cool house or frame are also charming for greenhouse or home decoration. Dormant bulbs may be procured from September to January.

SPARAXIS. African Harlequin Flower.

Dwarf bulbous plants producing flowers exceedingly rich and beautiful in their coloring, being blotched, spotted, and flaked with pure white, yellow, orange, red, purple, and violet in almost every possible manner. They are more compact and dwarf than the Ixias, few of them attaining a greater height than six to twelve inches, and grow well when planted in a cold frame or pit where they can have a slight protection in winter. They also succeed well when grown in pots or boxes in a cool greenhouse. The bulbs should be potted five or six bulbs in a five inch pot in September in a rich, sandy loam, and placed under the stage or in partial shade until they begin to grow, when they should receive light and water. Sparaxis, Ixias, Babianas and other Cape bulbous plants are fast rising in the estimation of florists for cutting for loose flowers, large numbers being now

grown for the New York market every year. Dormant bulbs may be procured from September to January.

SPIRÆA JAPONICA. (Astilbe.)

Though a perfectly hardy herbaceous plant, this is undoubtedly one of the most useful and graceful subjects grown for early forcing, its foliage and flowers combined making it one of the finest gems for early decorative work in the house or conservatory, while for grace and elegance as a cut flower it is unequalled. For forcing, the roots or clumps are potted in five or six inch pots in the fall and covered up with leaves or some other material so that they do not freeze, and yet have no artificial heat. After three or four weeks, as the new roots begin to run freely, they may be taken, as required, into a cool house, say an average of 45 degrees, at night and watered sparingly till free indications of growth are shown, when the temperature may be increased to 55 degrees at night, but not higher if the best development of the flower is desired. An abundant supply of water is necessary, and as the pots get full of roots frequent supplies with liquid manure will be of great service. Dormant roots may be procured from November to May.

SPREKELIA FORMOSISSIMA.

Jacobæan Lily.

This plant, known also as *Amaryllis formosissima*, is a half-hardy, bulbous plant with splendid dark scarlet flowers. They succeed well, planted in the open ground in May, where they will produce their flowers in June before the leaves show. They will ripen off their bulbs by fall, when they should be taken up and dried with the tops on, and stored in a dry room free from frost. It is also a very desirable plant for pot culture, and it may be grown in water like a Hyacinth requiring similar treatment. Dormant bulbs may be procured from November to May.

STERNBERGIA. Mt. Etna Lily.

Lily of the Field.

The best known and popular species, *S. lutea*, often called *Amaryllis lutea*, is one of the most charming and useful of all autumnal hardy flowering bulbs. The flowers, which are produced from September to November, rise singly to a height of from three to six inches, are pure yellow, much like a Crocus, but larger and the petals more fleshy. The Sternbergias grow better and increase more freely in a mixture of leaf-mould and loam than in any other soil. They are not only very hardy, but increase rapidly by the multiplication of offsets, rows planted with single bulbs speedily spreading out into lines varying from six inches to a foot in breadth of flowers and foliage.

STRUMARIA.

An exceedingly pretty little bulbous plant from the Cape of Good Hope, with red, white or pink flowers, excellent for frame culture and very effective in pots. It is closely allied to Nerine, which see, as to culture, etc.

TECOPHYLÆA. Chilian Crocus.

T. cyanocrocus, the only species yet in cultivation, is a charming little bulbous plant, having

narrow leaves and erect bell-shaped flowers of an intensely deep blue color with a light centre. It blooms from April to May, and is hardy with a little protection, and does well in a cold frame or pit.

TIGRIDIA. Peacock Tiger Flower. Mexican Shell Flower.

Extremely handsome summer-flowering bulbs, growing about two feet high, and producing large, gorgeous, exquisitely spotted flowers from July up till frost. They may be planted in May about three inches deep in a warm, sunny border, and there is no better or more effective mode of growing Tiger flowers than in beds or considerable masses of a dozen or so in a clump. By thus planting them they not only make a much better show, but they support each other, and no stakes are needed. Take up in fall when done blooming, or after the first frost, and cure carefully, storing them in a dry, warm room secure from mice, which are exceedingly partial to the bulbs. Dormant bulbs may be procured from November to June.

TRICONEMA.

Beautiful little half-hardy, Crocus-like, bulbous plants, with red, yellow, purple and white flowers, growing well in a cold frame or greenhouse, and requiring the same treatment as Ixias, which see.

TRILLIUM. American Wood Lily.

One of our most beautiful hardy perennials, growing and flowering profusely in partially shaded nooks, about the lawn, under trees, etc. They should be planted as early in the fall as possible to enable them to get established before winter, and prefer a soil with a good admixture of leaf-soil and sand. The flowers of *T. grandiflorum* are large, pure white, changing to soft rose, and if grown several together it makes an admirable pot plant. Dormant roots may be procured from November to May.

TRITELEIA. Spring Star Flower.

Hardy bulbous plants of the easiest culture, succeeding in any light garden soil. It is perfectly hardy and may be planted in fall, where it is to remain, in masses or as an edging to beds of spring flowers; its pretty star-shaped flowers are of a delicate milky-white color suffused with blue, have a rich primrose fragrance, and remain a long time in bloom. If planted six or eight bulbs in a five inch pot they will be found very desirable for early spring decoration in the house or greenhouse, as well as for cut flowers. Dormant bulbs may be procured from September to January.

TRITONIA.

A group of half-hardy, free-blooming, bulbous plants from the Cape of Good Hope, closely allied to the Ixias, and requiring the same treatment. The prevailing color is orange or buff, and each shade is characterized by that semi-transparency which renders this genus so distinct and useful as a pot plant, or for cut flowers for vases, etc. Dormant bulbs are in season from September to January.

TROPÆOLUM.

Beautiful and curious tuberous-rooted creepers for greenhouse culture. The several species succeed well in a light, rich soil with a liberal admixture

of leaf-mould and sand. Their peculiar shaped flowers are marked red, black and yellow, and when trained on a balloon-trellis make a fine appearance in the greenhouse in spring. They should be planted any time from October to January, and when started placed in a light, cool place near the glass and the training attended to daily. After the leaves have turned yellow, water should be withheld and the tubers allowed to rest to be planted again when growth is visible. Dormant tubers may be procured from September to January.

TUBEROSE. (*Polianthes*.)

This pure white, perfectly double, delightfully fragrant flower, invaluable for bouquets or wherever cut flowers are in demand, is too well known to need any description. It delights in a strong, rich, deep, well drained, warm soil; manure, heat and water are essential to its perfect development. For cultivation in the open border the bulbs should be planted about the 1st of June (the offsets having been previously removed and planted separately to produce flowering bulbs for next season), covering the bulb about one inch with soil. No other care is needed than that usually given to garden plants. Tuberoses, if started in heat in damp moss or pots and planted out about June 20 when the ground is warm, will flower three or four weeks earlier than the dry bulbs planted in the open ground, thus lengthening the season considerably. Forcing Tuberoses for winter is a rather difficult operation, and the demand for the cut flowers does not justify the trouble and expense. A full description is given at page 186 of "Practical Floriculture," to which we would refer the reader. Tuberose bulbs may be had at any time from November to June.

TULBAGHIA.

A small genus of greenhouse evergreen tuberous perennials, of which *T. violacea* is the best known and most interesting. Its flowers, which are of a violet-purple color, are produced in umbels, somewhat like those of the Agapanthus, to which it is closely allied. It grows well in a compost of sandy loam and leaf-mould and flowers in March.

TULIPS.

Tulips are so well known that no recommendation is needed to encourage their cultivation. Nothing can surpass the brilliant and charming effect produced by the judicious planting of these in beds of well selected colors and varieties, and grown in this way, or planted in clumps or lines of distinct colors in association with Narcissus, Hyacinths, and other spring flowers, or as broad marginal lines in front of shrubbery borders, their effect when in bloom is strikingly beautiful. October and November are the best months for planting, and to grow them to perfection the bulbs should be planted about five inches apart and three to five inches deep in well-prepared beds, dug at least a foot deep with a liberal dressing of well decayed manure added. Fresh, coarse manure is injurious. If the ground is heavy a good proportion of leaf-mould and sand should also be incorporated. In planting designs to color, it is advisable to remove the soil entirely to the depth of three inches and press the bulbs into lines

drawn to represent the design, and then cover with the soil to the depth of three inches at the sides rounding off the bed to about five inches in the centre to prevent water standing on them in the winter. Generally speaking, the single flowered varieties are by far the most brilliant and showy for out-door planting, although, perhaps, individually not so massive and rich in appearance or so durable as the double-flowered sorts. Before winter sets in a good covering of rotted manure is advisable, which will protect them slightly and act as a mulch in spring. After flowering, as soon as the stems of the Tulip turn yellow and the leaves begin to dry, they may be taken up and put in a cool, dry place. When dry, thoroughly clean off the old skin and dirt and put in paper bags ready for planting out again in October. When planted in beds, however, it is often necessary to remove them to make room for other plants before the bulbs are properly ripened. In this case they should be carefully taken up, as they are very brittle at the neck at this stage, and "heeled in" in some slightly shaded place until the foliage is quite withered. They may then be cleaned and stored, as above. Tulips are now also extensively grown in pots with from three to twelve bulbs in each, and make fine specimens for the greenhouse or conservatory; they are also forced very extensively for cut flowers during the winter and spring months. The method of culture is identical with that of the Hyacinth and Paper White Narcissus, which see. Dormant bulbs may be procured from September to February.

TYDEA.

Very distinct plants of the *Gesnera* family, producing a long and brilliant succession of flowers of the most diverse shapes and gay colored markings. They are valuable for winter flowering, as by starting them early or late they will bloom at any season. They succeed admirably under the same treatment as the Achimenes which see.

URCEOLINA. Urn Flower.

A small genus of handsome summer-blooming, Peruvian bulbs with showy yellow, red or green flowers, thriving well in the greenhouse in a compost of rich, sandy loam and leaf-mould. They succeed well, planted out in the open border in May, to be taken up in fall and kept over winter like Tigridias, which see.

VALLOTA PURPUREA. Scarborough Lily.

An evergreen bulb from the Cape of Good Hope, producing its splendid spikes of scarlet blossoms (not purple, as the name implies) in August, and occasionally at other periods. It does best with ordinary pot culture, requiring liberal waterings, except for a few months in winter. The bulbs should not be often separated, but occasionally shifted into larger pots when they become thoroughly root-bound. Too frequent shifting is injurious to this bulb, they do much better when pinched, and it is not an uncommon occurrence to see twenty to twenty-five flower spikes with five to eight flowers each at one time from a ten inch pot of bulbs. They may be grown successfully in the border and dried off in winter like the Gladiolus, except that they should be taken up after a slight

frost and packed away in boxes of earth without disturbing the tops, and given water very sparingly during winter.

VIEUSSEUXIA. Peacock Iris.

Small Cape bulbous plants, usually known as the Peacock Iris on account of their very brilliant flowers, varying from white to crimson and purple. They are not hardy, but will grow with the partial aid of a cold frame or pit. They require a light, sandy soil, and may be procured from September to May, or they may be planted out in May in a warm sheltered border and taken up in fall and treated like Tigridias.

WATSONIA. Bugle Lily.

A genus of half-hardy bulbs from the Cape of Good Hope, closely allied to the Gladiolus. They are hardy south of Washington, and can be grown here with the protection of a cold frame or pit. When dried off in the fall, wintered over, and planted out in spring, their long spikes of brilliant scarlet, pink, white and purple flowers are very effective for grouping in beds or shrubberies, and

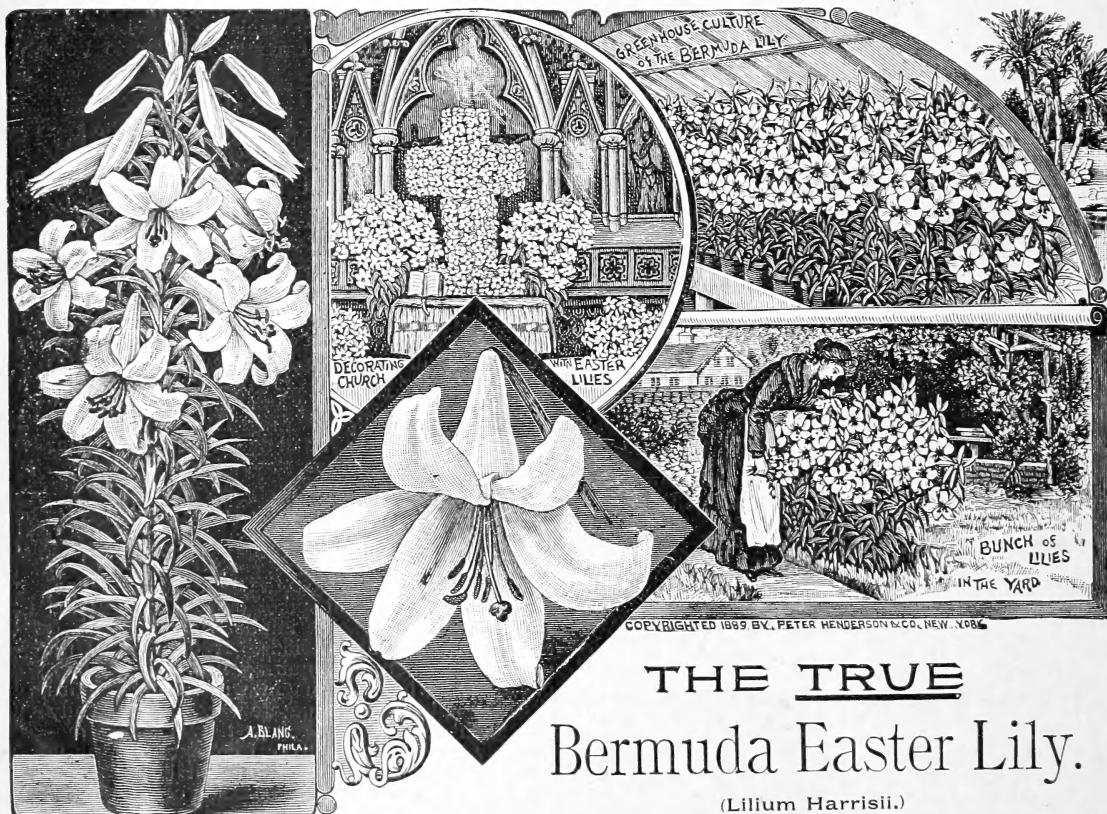
most useful for cut flowers. They like a light, rich soil, and flower in the frame in early summer. Dormant bulbs may be procured from November to May.

XIPHION.

A genus scarcely differing from Iris, except in the character of its root stock, which is a bulb instead of a rhizome. *X. latifolium* (*Iris xiphioides*) is the English Iris of florists and old writers.

ZEPHYRANTHES. Zephyr Flower. Fairy Lily.

A beautiful genus of hardy and half-hardy bulbous plants, with white, pink or rose-colored flowers produced singly on slender scapes about six inches high. One of the best of the species, *Z. Atamasco*, known also as *Amaryllis Atamasco*, has beautiful rosy white flowers which are produced in great abundance during the entire summer. The bulbs may be planted in the open border early in spring, and with slight protection during winter they may remain undisturbed a number of years. Dormant bulbs may be procured from August to January.

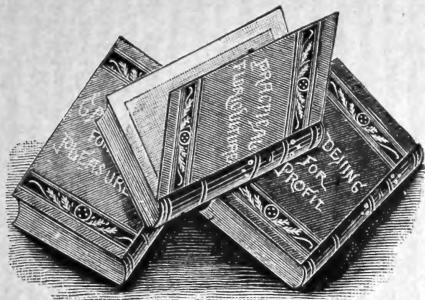


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(*Lilium Harrisii.*)

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